JANUARY-FEBRUARY 1949

# THE BULLETIN

OF THE



AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

VOLUME 6

NUMBER 1

## A Note from your Editor

#### **BULLETIN SURVEY**

This begins the sixth year a specialized publication has been issued for hospital pharmacists. Starting in a small way, it has now grown to a respectable size. The A.S.H.P. by initiating this publication has done much to foster better pharmaceutical care for patients in the nation's hospitals; it has given encouragement and inspiration and hope to all hospital pharmacists; it has provided a medium for the exchange of ideas among all of us - and ideas and their implementation are the basis of progress; and it has brought the germ of understanding of hospital pharmacy to schools and boards and students of pharmacy and to hospital administrators.

But as yet, the potentialities of our publication are greatly underdeveloped. As a beginning, in a series of steps toward improvement, your editor is sending to each of you soon a short questionnaire asking for your frank comments and suggestions. I know that from every one of you will come ideas which will lead to the development of a more valuable and useful publication.

By correlating the incidence of the recommendations and suggestions in your replies it is our hope that we can greatly improve the usefulness of this publication to you. Still, when the plan of improvement is adopted, there is still the task of carrying it out. This will require additional sacrifices in time and energy from several of you.

I do hope that when you receive the questionnaire you will fill it out and return it as soon as possible so that we can begin developing specific plans for a more progressive publication based on the things you want.

#### A JOB FOR AFFILIATED CHAPTERS

As may be noted in the article beginning on page 42, the scope of the Hospital Survey and Construction Act is large. Although a perusal of this article will show that most of the hospitals approved up to November 1, 1948 are below 100

beds in size, we must appreciate that rural area without adequate hospital facilities were given the highest priority. Soon, and this is true even at the present time, the number of larger hospitals approved will continue to grow. It has been suggested before and it is reiterated again that the Society's affiliated chapters can participate in the planning of these hospitals. If they fail to take advantage of this opportunity now, much potential good will be lost to hospital pharmacy and the progress of our specialty will be measurably retarded for decades.

The article "Scope of the Hospital Survey and Construction Act" presents a challenge to all A.S.H.P. affiliated chapters. Will you accept it? The answer lies in the initiative of your local president and in your cooperation with his plans.

#### DIVISION REPORT

All members of the Society will be interested in reading the progress report of the Hospital Pharmacy Division by Dr. Robert P. Fischelis beginning on page 20. This is the first in a series of such reports to the membership and it is hoped that they will furnish you with a means of evaluating the projects for the specific advancement of hospital pharmacy and the hospital pharmacist being carried forward by this agency.

#### MEMBERSHIP DUES

If you have been billed for your membership dues won't you send in your fee without further delay? It is surprising how much difference the prompt payment of dues makes to those responsible for their collection and to the Society officers as a group who must plan the budget for the current year. It's your Society!

Cordially,

Don E. Francke

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## As The President



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#### A.S.H.P. HOUSE OF DELEGATES

During the San Francisco meeting of the Society, our By-Laws were revised in a number of respects. Perhaps the most important addition is the provision for a House of Delegates within our organizational structure. Article 4 of Chapter II provides for delegates to represent our affiliated chapters. Chapters having fifty or fewer members are entitled to send one delegate. Any chapter having more than fifty members may be represented by two delegates. Chapter IV makes provision for the House itself. In addition to delegates from local chapters, the members of the executive committee of the Society will also serve as members of the House. Our first meeting will be held in Jacksonville on Sunday evening, April 24. In the near future Secretary Cathcart will communicate officially with the chapters requesting the selection of delegates.

#### 1949 INSTITUTES ON HOSPITAL PHARMACY

It was stated on this page in the November-December 1948 issue that there will be two hospital pharmacy institutes during 1949. Plans have proceeded a long way since the appearance of that announcement.

The first institute will be held on the campus of the University of California in Berkeley from June 27 to July 1. An excellent program has been arranged. One innovation on the program is a workshop on hospital pharmacy administration and policy in which all persons enrolled will participate. Subjects to be considered in the workshop discussions include the therapeutics committee and the hospital formulary; purchasing; out-patient pharmacy service; accounting procedures, reports and records; and charges for drugs. Lectures will deal with various phases of the manufacture of pharmaceuticals and parenterals as well as with other technical and administrative problems. In addition to well qualified pharmacists, the faculty will include outstanding physicians and hospital administrators.

The other institute, also a five day meeting, will be held in Chicago at the University of Chicago beginning August 29.

Cordially,

W. arthur Pundam

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#### THE BULLETIN

#### Application for Active Membership in the

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AMERICAN PHARMACEUTICAL ASSOCIATION

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Approving of its objectives, I hereby apply for ACTIVE MEMBERSHIP in the American Pharmaceutical Association and I enclose \$10.00 to cover annual dues for the twelve month period beginning with the month following my election to membership. Membership includes subscription to the Journal of the A.Ph.A. which is published monthly in two editions, "Practical Pharmacy" and "Scientific". Subscription to the Journal for non-members is \$4.00 for each Edition or \$7.00 combined. Members of the A.Ph.A. receive a 50% discount on the regular subscription rate of each Journal, therefore \$2.00 for each edition (total \$4.00) is allocated for subscription to the Journals.

Miss Name in Full: Mr.		
Mrs. (	Please Print or type name and entire application	on if possible)
Street and No.	City	Zone State
	Of what State Pharmaceutical Assn. are	
Graduate of (Insert name	of College)	egrees
Registered Pharmacist in	(Insert names of all States in wh	
	(Insert names of all States in wh	hich registered)
Retail Pharmacist Hospital Pharmacist Government Pharmacist	(H) Manufacturer (M)	Association Official (A) Student (S)
Signature of Appl This application is endorsed	icant d by the following members of the AMERICAN PHAR	
Name	Name	
Robert P. Fischel	is, Secretary, American Pharmaceutical Associa	
2215 Con	stitution Avenue N. W. Washington 7, D. C.	co
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Form 230		CIR

### APPLICATION FOR MEMBERSHIP AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

Approving of its objects, I hereby apply for membership in the American Society of Hospital Pharmacists and enclose \$3 00 as the annual membership fee for the current year. I hereby affirm that I am a member of the American Pharmaceutical Association in good standing. In lieu of such affirmation I am submitting an application for membership in the American-Pharmaceutical Association together with dues and subscriptions to the journal as indicated on the application.

American Society of Hospital Pharmacists 2215 Constitution Ave., N.W. Washington 7, D.C.



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January-February 1949

DON E. FRANCKE Editor

GLORIA NIEMEYER Associate Editor

ASSISTANT EDITORS

Sister Mary Etheldreda Herbert L. Flack Leo F. Godley James Inashima Albert P. Lauve George L. Phillips Evlyn Gray Scott Anna D. Thiel Eddie Wolfe

EDITORIAL OFFICE University Hospital Ann Arbor, Michigan

PUBLICATION OFFICE American Pharmaceutical Association, Washington, D. C.

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Contributions of articles by hospital pharmacists, or by others interested in the progress of this important branch of the public health profession, will be accepted if they are of general interest to those in hospital pharmacy. The editors reserve the right to revise all material submitted, if necessary.

The American Society of Hospital Pharmacists and the American Pharmaceutical Association assume no responsibility for the statements and opinions advanced by contributors to THE BULLETIN. Views expressed in the editorials are those of the editor and do not necessarily represent the official position of the American Society of Hospital Pharmacists.

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Dear Sirs: The proposed minimum standards as published in THE BULLETIN are excellent. Nothing could be added or detracted.

The elaboration on the proposed minimum standards is open to comment.

Paragraph 3. (Personnel). This paragraph should and must include provisions to care for those pharmacists who are now working so hard, unselfishly, putting in personal time and money for the betterment of hospital pharmacy. It is my suggestion that upon the recommendation of the hospital administrator or chief medical officer and with the approval and acceptance by the American Society of Hospital Pharmacists, the American Pharmaceutical Association and the American Hospital Association, (might be wise to add that the applicant should have a record of a minimum of two years attendance at the Institute on Hospital Pharmacy) the pharmacist would receive a certificate signed and certified by those concerned, giving the applicant the rights and privilege that will be given to those who have internships and have higher degrees.

At present, the men with graduate work are comparatively few in number. I am sure you will agree with me that we have some very outstanding hospital pharmacists who did not intern or have graduate work, but got their education the hard way.

By this I do not mean to suggest that we should not advance; I am definitely in favor of this paragraph.

N. E. Hammelmann

Veterans Administration Hospital Jefferson Barracks, Missouri

Dear Sirs: Please find enclosed money order for the annual dues and subscription to THE BULLE-TIN.

May Itake this opportunity of expressing my appreciation for the very helpful literature which I have received from the Society.

With my best wishes for continued success, I remain

Sister Mary Avila

St. Michael's Hospital Toronto, Canada Dear Sirs: The response to the announcement for a pharmacist, which you inserted for us in THE BULLETIN, was indeed gratifying. Not only was this a service to us, but an indication that your publication is being widely read. The position has now been filled, and it will not be necessary to insert the announcement in the forthcoming issues.

Please accept our sincere appreciation for the service you have rendered us.

W. D. Owens, Jr., Administrator

Valdese General Hospital Valdese, North Carolina

Dear Sirs: Will you please send us THE BULLETIN on making sterile ophthalmic solutions by chemical sterilization.

George Stegner

Stegner Pharmacy Olean, New York

Dear Sirs: I have been a member of the A.S.H.P. since 1943 and have seen it grow with leaps and bounds, especially during the last few years. As I have enjoyed reading each issue of THE BULLETIN from which I have obtained information that has been of great benefit, I thought it worthy of contributing to the cause.

We have a pharmacy department in this hospital, which the V.A. may well be proud of. I have had the privilege of being the pharmacist since July 17, 1942.

Enclosed are some pictures of our pharmacy and the drug cart, along with a copy of the report to the Chief of the Professional Service. This will give a description of the drug cart now in use in our hospital.

I am sending my 1949 dues to both the A.S.H.P. and the A. Ph. A. and will be looking forward to receiving the Bulletins for 1949.

Ervin C. Wells

VA Hospital Legion, Texas

## **EDITORIAL**

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#### INSTRUCTION IN PRESCRIPTION WRITING

There is a need for the establishment of a well developed course in prescription writing to be available to all graduates of medicine at the time of their medical internship.

It is a well recognized fact that recent graduates in medicine have difficulty in writing proper prescriptions. This is undoubtedly due to several reasons. First, little attention is now given to instruction in prescription writing in the medical schools. This is understandable when we consider the broad scope of courses in pharmacology, the time allotted to this subject, the fact that many who teach the subject are either not practicing physicians or else are highly specialized and that pharmacology instruction is given to medical students during their sophomore and junior years before they have had clinical assignments.

Since all graduates in medicine are required to serve an internship in an approved hospital and since the large majority of these institutions have a pharmacy department under the supervision of a pharmacist, should not a course in prescription writing be taught to medical interns by the hospital pharmacist?

Such a course would be welcomed by the medical intern, the hospital administrator and the hospital pharmacist. To the intern it would bring specific knowledge regarding prescription writing and related problems involved in the prescribing and dispensing of drugs at the time he is most in need of it. Administrators, particularly those in the smaller hospitals, are anxious to utilize every means to extend and improve the teaching facilities of the hospital. They know, if their teaching facilities can be expanded and well integrated, that the hospital can better attract the most desirable interns. Administrators also know that such

courses lead inevitably to a smoother functioning hospital. The hospital pharmacist would welcome the opportunity to present such a course because he knows it would foster, specifically and generally, better professional relations between physicians and pharmacists. Of particular advantage to the hospital pharmacist, the presentation of such a course would give him the opportunity to inform the intern of the special products and formulas in common use in the hospital; it would provide a medium through which to explain the policies and procedures of the Pharmacy Department and it would make the hospital pharmacist a member of the teaching team of the hospital. Such a program is bound to have other effects. It would tend to encourage interns as well as physicians to consult the hospital pharmacist for information concerning new drugs and would thus make the medical staff more independent of other sources for this information.

The Division of Hospital Pharmacy should appoint a committee composed of hospital pharmacists and physicians to outline a well developed course in prescription writing. In addition, the course could well include such items as a summary of federal and state laws concerning the prescribing and dispensing of narcotic and barbiturate drugs, problems involved in the refilling of prescriptions, labeling regulations, basic information on vehicles and flavoring agents, the use of the metric system, procedures for obtaining drugs for investigational use and other items of pertinent interest to the intern.

The ramifications of such a program are many. Its importance as a service to the intern, to the hospital and to the advancement of hospital pharmacy cannot be overestimated. Its implementation should be effected as soon as possible.

DON E. FRANCKE, Editor

# TEACHING Hospital Pharmacy

By Charles G. Towne, Ph.G., B.S., Chief Pharmacist VA Regional Office, Los Angeles, California

Is hospital pharmacy truly a Specialty?

At a recent meeting of our chapter officers with members of the State Board to discuss training for hospital pharmacists, one state board member, the operator of a busy professional pharmacy, gave his opinion that any good pharmacist could take over a hospital pharmacy in 20 minutes, and that present college curriculum is adequate without special training in hospital pharmacy.

In direct contrast, the chief pharmacist of the great Los Angeles County Hospital needs two years to train an experienced pharmacist in all the phases of his facility. The American Society of Hospital Pharmacists and most chief pharmacists will agree, recognizes the need for one year's hospital experience; and even then, unless well read and active in organized hospital pharmacy, the beginner lacks too much background and over-all knowledge to be classed a specialist.

While rapid progress is being made by this society, there is still much misunderstanding and failure to appreciate our problems throughout pharmacy as a whole, and among educators in particular. This society is accomplishing remarkable results in educating the hospital field. It has set a goal to raise the minimum standards, and created a demand for the specially-trained pharmacist in their institutions. Therefore, we must put forth our best efforts to expand the educational facilities to meet this demand by the widespread inauguration of courses in hospital pharmacy. Further, recent estimates show that there will be a need for 10,000 hospital pharmacists in the United States. For instance, in southern California, with thousands of families moving into the area, creating a rapid hospital development, we must soon have an additional hundred hospital pharmacists.

Where will we get them? Pharmacists from the trade and young graduates will be hired and trained in the too little spare time of the chiefs A review is presented of the recommended course outlines and their modernization. Particular emphasis is made on compilation of material. The course's place in the college curriculum, and its value to the ever expanding specialty of hospital pharmacy will be summarized.

and other staff pharmacists. Others will be hired into small one-pharmacist hospitals untrained to fend for themselves. We cannot wait until schools and hospitals establish elaborate Master degree courses and internships. We must have some kind of a beginning training for our applicants at once. Future aims should definitely include more advanced pre-training, but let us start at the bottom of the ladder.

Most students are still veterans, married and anxious to get out of school and earn a good salary. The suggestion of an extra year in college is, to say the least, unappealing. Few will turn to hospital work unless they are convinced of the advantages, high ideals, and better future it offers. Most young registered pharmacists are dissatisfied with their work as mere drug clerks, and are searching for improved situations. Too seldom do they turn to hospital work. Why? Because we haven't yet sold them! The hospital is a foreign element to most pharmacists, unrecognized for its potentialities. Right here is the starting point to raise our minimum standards -- a hospital pharmacy course available to all.

We have prepared such a course to meet the great need for hospital pharmacists in southern California. Here a situation existed that is typical of many sections of the nation -- a shortage of trained hospital pharmacists and a College of Pharmacy with little incentive toward hospital interests, having no hospital attached to the university. Obviously this does not apply to teaching

hospitals and colleges in such institutions as Purdue, Johns Hopkins, California, or many others, and it is gratifying to see this program of hospital pharmacy education spreading with each new notice in THE BULLETIN -- Washington, Alabama, Tennessee, and Colorado have recently added courses -- still many are left to join these ranks. This awakening to the need for this program is beginning to be aroused by this society's fine work and publications.

Our course was written for presentation at the University of Southern California College of Pharmacy, open as an elective study for advanced and graduate students, and with the added feature of first presenting it at night -- 3 hours one night a week -- in order to make this training available to ambitious pharmacists wanting to advance above "drug clerking"; to those hospital pharmacists of recent employment in need of a fundamental background; and to old-timers wishing a refresher. Interest in a night course was recently well demonstrated in the large attendance by graduate pharmacists at a course in "Modern Drugs" so presented.

The course is prepared for 48 didactic hours, designed to be taught by an experienced hospital pharmacist -- 2 hours of lecture and 1 hour of papers presented by students and guest speakers, and open forum discussion. It is offered as a general basic course for a foundation upon which to build a career by entering hospital work as an intern or a junior staff member, and serving at least a year for recognition as a hospital phar-

macy specialist.

With even this modest beginning, it is hoped this society will soon establish an award recognizing this accomplishment. As Dr. Robert P. Fischelis emphasized in his recent article in the journal, Hospitals, a Specialty Board should be established to grant certificates. In this instance, 4-year graduates with this 48-hour basic course; 1 year probationary service or internship in a hospital; registration; and membership in the Society; plus one paper, article, or presentation annually; should be sufficient to earn initial recognition as a specialist. Of course these are only minimum standards, which should be raised as the program develops.

Think what this would mean to the organization for memberships, and to the individual as incen-

tive and promotional qualifications.

Here, though, we must not forget the already established hospital pharmacists. They should be rated and accredited with certificates so endorsed by the same Specialty Board. This should be at a national or regional level, not local.

The value of this training and a certificate of specialty should soon be recognized by the military services, as pharmacist's duties there are

being directed toward hospitals and clinics.

Before a course can be presented, a suitable outline must be decided upon. The basic outline should be patterned after the Pharmaceutical Syllabus Outline of 1942 for a Course in Hospital Pharmacy.

Assign several experienced hospital pharmacists the task of outlining such a course, and each would complete a very similar outline. This was our experience when revising the tentative University of Southern California outline to fit the requirements of the Syllabus. And since then, when the fine outline of the A.S.H.P. Special Committee on Education was published last spring, (see THIS PUBLICATION 5:65 (March-April, 1948) again only slight differences were to be found in

the over-all coverage of the subject.

These outlines are all tentative, and subject to revision and modernization, almost from day to day, since the progress of our study is so rapid. Furthermore, changes must be made to fit the outline to the varying subject emphasis of different schools, and to avoid overlapping of material taught in other courses. For instance, the Committee's outline places small emphasis on parenteral solutions; properly so if the manufacturing courses of the college are adequate to cover sterile medications. Most schools pay too little attention to the U.S.P. and N.F. monographs and other texts on this subject for hospital application. Therefore, the emphasis upon this subject will become necessary in our course.

Much space of the Committee's outline is devoted to laws and regulations. Here again this depends upon the Pharmaceutical Law Course of the college. The application of these laws to the hospital practice, plus coverage of additional hospital laws and institutional regulations should be included as necessary. On this subject, it is obviously necessary to alter the outline to meet the state and local laws in which the college is

situated.

Each instructor will place different emphasis upon phases and features of the outline in accordance with his experience, for beyond the basic outline agreement, the subject of hospital pharmacy varies extremely. The greatest obstacle in preparing a course is to find a medium level for teaching. Too often we think of pharmacy as a wide field, and hospital pharmacy as a narrow specialty in this wide field. More correctly, pharmacy is a narrow field with hospital pharmacy a wide specialty. Far more varied are the duties of the hospital pharmacist than the retail pharmacist, and professionally, hospital pharmacies vary more than retail pharmacies.

Consider the difference in a governmental T. B. hospital with 1500 beds and perhaps one pharmacist, and an open private hospital of a few hundred

beds, catering to the wide-spread wants of visiting physicians, and the bedside care of each individual patient; or between these and a busy out-patient department in a charity clinic, filling hundreds of prescriptions daily. On the other hand, the retail prescription departments vary only in the business they do. Since the pharmacy curriculum has been chiefly devoted to preparing the student for the retail trade, what he learns in the hospital course will extensively widen the scope of application of his basic pharmaceutical training.

We have agreed the Committee's outline is an excellent tentative beginning, designed to be correlated with the need of each college. Our U.S.C. outline varied only in some structural presentation. It particularly emphasizes hospital indoctrination, and covers under the heading Administration such administrative duties as personnel, policy, pricing, procurement, etc., and under Functions, the dispensing and manufacturing and practical aspects, with Policy detailed into each phase. The Committee's outline discussed Administrative principles under Functions, and used Policy as a major subject. Actually these differences are negligible.

Compiling the material proved to be the most extensive part of preparing a course.

The source of information for Part One, devoted to the hospital, its history, organization, and management, was excellent. The administrators, another group of hospital specialists, have set us a worthy example with their college course, advanced work, and fellowship. A text for their subject, MacEachern's "Hospital Organization and Management," is complete and thorough. For our course this book has been abstracted, and when supplemented by some history of medicine for hospital background, was sufficient to introduce the pharmacist to all phases of the hospital, with the exception of the pharmacy, to which it gave due importance but made no attempt at elaboration. It should be required reading for all students.

For the remainder of the course, however, it was another matter. Hospital pharmacy, especially, is most difficult. How comparatively easy it is to prepare for a course like bacteriology, reach for a textbook and find the table of contents to be a suitable outline, and the book to include compiled subject matter. There is no hospital pharmacy text handy for the instructor. In a way it would be a good thing for each instructor to gather the material himself, in spite of the tremendous undertaking, for it proves to be an excellent preparation for its teaching.

This problem was solved by gathering all the written material available on the subject hospital pharmacy since 1940. Reams have been published in many different places. The chief source was a

collection of the complete volumes of the following:

The Bulletin of American Society Hospital Pharmacists

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The Journals of the American Pharmaceutical Association, Practical and Scientific Editions

The American Professional Pharmacist

Those issues of Hospitals and Modern Hospital containing pertinent material

Public Health and V. A. publications

Army and Navy Manuals

State and Federal publications -- laws, regulations, etc.

Various references on general pharmacy subjects (Sterility in U.S.P., etc.) or Lyman's "American Pharmacy" - chapter on ampuls.

From among this voluminous collection of publications you will find those articles written by our own active hospital pharmacists the most valuable. These may be classified as follows:

- 1. General articles on the subject as a whole.
- Articles describing procedure in various hospitals.
- 3. Specific articles on single phases.
- 4. Miscellaneous items, editorials, etc.

Let us first take the numerous presentations written by hospital pharmacists on how their pharmacies function. Articles have been written covering spans of hospital classifications from the penal institute to the mercy hospital in Toledo, Ohio; from the small clinic to the nation-wide veterans' program; or on hospitals from the Philippines to Great Britain.

Then there are the articles on specific subjects -- records, manufacturing, alcohol, dispensing, out-patient departments, etc., many about each subject written for various purposes. Some few are in a form and are general enough for teaching, and can be used nearly intact. For example: the reprints from Hospitals, the journal of the American Hospital Association. These were invaluable, though most were written to influence the hospital administrators. Such an article as Jones' on the Formulary, a classic in our field, can be used intact. While Clarke's articles on the Outpatient Department were goldmines of information, much duplication of other functions covered necessitated considerable abstraction.

Our own Bulletin of recent years, the hospital pharmacy section of A. Ph. A. Journal, practical

pharmacy edition, and the American Professional Pharmacist hospital forum articles, proved of greatest value. Many little gems of wisdom are to be found in the various editorials and abstracts. Many who are probably present at this gathering have contributed widely: Zugich's "Records," Clarke's "Outpatients," Francke's "Therapeutic Committee," Godley's "Manufacturing," and Mrs. Scott's "Policy," just to mention a very few.

Into each phase of the course the compiler must write his summary of all this reading, and some basic information learned only by practical experience. A chief source of gathering material lies in the active participation and attendance to Society functions, discussion with other hospital pharmacists, and by visiting hospitals of all classifications, and gathering forms, systems and ideas.

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All material to fill the outline is not yet written. Many subjects suggest themselves for elaboration or research. For instance, a history of hospital pharmacy, or a good written summation of narcotic procedures for private and public institutions.

Finally, you make a draft of all the compiled notes and abstracts, together with personal experiences, into one course -- only to find it needs revision before the ink is dry!

The bibliography alone represents many hours of work. Care was taken to credit each writer whose article was used, and to index this list for quick reference in class work.

Now to briefly scan the finished product: -- Part one is entirely devoted to indoctrination of the student into the hospital itself, to create that feeling of being a vital part of an organization devoted to the welfare of the sick. Idealistic though it sounds, pride and gratification in duties well performed are found in the hospital service as in no other part of pharmacy. The history of the hospital is a fascinating story, and the administration and organization is so well presented by MacEachern that it is made simple to instruct. This part of the course deserves about 15 hours to teach.

The material as covered on the hospital pharmacy, part two, is well known to those present who keep well posted. The details are too many to mention at this time. However, the aim is to present it to serve the double purpose of teaching the uninitiated and refreshing the hospital pharmacists attending the course.

Some parts which have been widely written about are emphasized -- for instance, under Dissemination of Information, the Formulary has been given much attention, using as examples the Formularies of the Universities of Michigan and California as guides and recommending them as texts. Since the writer is particularly interested in outpatient work, probably the prescription and

dispensing procedures have been over-emphasized at the expense of such subjects as pricing in private hospitals, with which he is less familiar. This criticism can be aimed at whoever attempts this vast subject alone.

A suggestion to the society to advance this project is that a group of interested hospital pharmacists be selected according to the best known interests of each, to write a text for such a course or handbook for this specialty, patterned after Lyman's well known book "American Pharmacy."

Since plans for advanced or graduate study beyond this course are still pending, and when completed will be inadequate to serve as many students as will take this general course, at least one-third of each session should be devoted to special problems assigned pupils, guest speakers best qualified to discuss the current part of the course, films, or other supplementary material. Trips or visits of individuals or groups to the various hospitals of the area, with the cooperation of Society members, are also being planned.

While our county hospital and the V.A. are considering internships or trainee programs for the better students, since this is chapter-sponsored, a graduate scholarship would also be a worthwhile project as a further incentive.

As a beginning endeavor to raise the minimum standards, it is hoped this will stimulate other chapters or interested hospital pharmacists to carry this project on in their communities. The idea of inaugurating this course must be sold to the deans and boards of the colleges, and an interest in the subject be created among students of the school and graduates in the field. This can best be done by interesting the deans and prominent educators in your chapter, and showing them the high ideals of our purpose. Convince the students by supporting their local A. Ph. A. branch, inviting guests to your meetings, and sending guest speakers to theirs. The course can be publicized in local drug journals and circulars of the retail trade. Though all who take the course will not be ideal personnel for hospital pharmacy, the chapter should provide a system of placing the more worthwhile in positions.

In summary, emphasis is placed on the need of a general course to reach a large number at once. The course should create a greater interest in hospital pharmacy, and provide a foundation upon which to build a career. It must remain flexible to meet the ever-expanding subject. Incentive to enter the field through the course and its first year of experience should be stimulated by a reward in the form of a Specialist Certificate or Fellowship. It is hoped that some small part of this material will serve as assistance to others starting this project.

#### THE BULLETIN HOSPITAL PHARMACY

Course Outline	
Minimum - 48 Didactic	Hours
Part One: THE	HOSPITAL

#### A. History and Development

- 1. Early Hospitals a. Egyptian and Hindu b. Greek and Roman
  - c. Early Christian Era
  - d. Mohammedan
  - e. Early Military

#### 2. Medieval Hospitals

- 3. 18th Century Hospitals a. Early American b. Period of Ignorance and Error
- 4. Late 19th Century Renaissance
- 5. Twentieth Century Progress

#### B. Functions of the Hospital

- 1. Care of the Sick and Injured
- 2. Educational 3. Public Health
- 4. Research

#### C. Classification of Hospitals

- 1. Organization and Control
  - a. Governmental
    - Public Health State
    - County City
  - b. Non-governmental Church, Fraternal Community Private: Profit or non-profit II Administration
  - 2. Type of Service
    - a. General b. Special
      - T. B., Mental, Medicine, Children, Orthopedic, etc.

#### D. Organization and Administration

- 1. The governing Board
  - a. Officers
  - b. Committees
- 2. The Director
- 3. The Medical Staff
  - a. Duties
  - b. Types Open or closed, Consulting, E. Personnel Visiting, etc., House; Staff, resident or intern
- 4. Departments, Professional or clinical
  - a. Medical, Surgical, Gynecology, etc.
  - b. Diagnostic and Therapeutic: Laboratory, Pharmacy, Physiotherapy, etc.
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## TOLSEROL

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## New Muscle Relaxant for Spastic Conditions

Availability of the drug, Tolserol,\* offers a new method in treating certain neuromuscular disorders including hemiplegia, Parkinson's syndrome, multiple sclerosis, and other spastic conditions. It should also prove effective in treating tetanus convulsions. Administered either orally or intravenously, Tolserol has a relaxant effect on muscular spasm, spasticity and rigidity, and an ameliorating effect on tremor and involuntary movement of extrapyramidal origin. In patients who are benefited, Tolserol medication tends to reduce exaggerated reflexes to normal without affecting normal reflexes.

Original work on Tolserol was done by English and Canadian investigators who first used it as an adjunct to anesthesia for surgical patients. These reports have not been substantiated in this country and its use for such purpose is not recommended. According to English reports, Tolserol, known also as Myanesin,\*\* was first administered intravenously only and it was thought to be of little practical interest because of its short duration of action, and the side effects introduced with this route of administration. Later studies in this country by Berger and Schwartz showed that Tolserol on oral administration produces most of the

beneficial effects observed after intravenous administration without causing side effects. Orally, even in high doses, Tolserol is free from toxic effects.

#### PHYSICAL PROPERTIES

Tolserol is a colorless, odorless crystalline solid with a melting point of 70° to 71° C. Its solubility in water at 22°C. is 1.09 grams per 100 cc., but a 2 per cent fairly stable supersaturated solution can be obtained by preparing solutions at higher temperatures and allowing them to cool. Higher concentrations necessitate the use of solubilizing agents. Among those which have been used are alcohol, propylene glycol and urea and its derivatives. With alcohol and propylene glycol, a stable 10 per cent solution has been prepared which is now in use in Great Britain. Solutions of Tolserol are stable and unaffected by light, air, cold, or dilute acids and alkalis; they can be sterilized by heat or filtration and are compatible and freely miscible with solutions of sodium chloride, dextrose, and derivatives of barbituric and thiobarbituric acids.

#### **PHARMACOLOGY**

Tolserol produces muscular relaxation similar in appearance to that produced by curare alkaloids. Studies by Burke on various experimental animals compared the pharmacological action with that of curare. The degree of relaxation is dependent upon the dosage and, as with curare, complete relaxation of the postural muscles can be accomplished without paralysis of respiratory muscles.

Tolserol produces ataxia at a lower fraction of the paralyzing dose than does curare; hence its dose-response range is wider. It is singularly free from toxic effects parenterally in the lowdose range or orally in higher dosage because of the relatively slow rate of absorption from the gastro-intestinal tract as compared with the rapid rate of destruction in the body following parenteral administration.

The stage of partial paralysis caused by Tolserol is characterized by incoordination, stupor and partial analysis, whereas curare produces only a simulated muscle weakness.

The duration of paralysis in dogs and rabbits is approximately the same with Tolserol as with curare, but a longer period of ataxia usually follows the administration of Tolserol.

<sup>\*</sup>Tolserol is E. R. Squibb's name for  $\alpha:\beta$  -dihydroxy- $\gamma$ -(2-methylphenoxy)-propane. \*\*Myanesin is the English name for  $\alpha:\beta$ -dihydroxy- $\gamma$ -(2-methylphenoxy)-propane.

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Unlike curare, upon injection Tolserol exhibits a local anesthetic effect, which is slightly less than that of procaine.

When Tolserol was first used clinically a 10 per cent solution in propylene glycol and alcohol was given intravenously in order to administer appreciable concentrations of the drug rapidly. A significant incidence of hemolysis and of phlebitis and occasionally hemoglobinuria were reported to result from such concentration. The pharmacology of the drug in doses approaching the toxic level (doses comparable to those used clinically as an adjunct to anesthesia) has been extensively studied in dogs. In single intravenous doses sufficient to produce paralysis, Tolserol has been shown to cause significant destruction of erythrocytes with excretion of hemoglobin in the urine. This effect is not observed in the lower dosage employed in neurology.

The administration of a paralyzing dose of Tolserol to dogs is accompanied by severe vasodepression. Doses equal to or slightly greater than those necessary to produce respiratory paralysis cause a severe cardiac disturbance and death even though respiration be sustained artificially. In high doses the drug appears to depress specifically the sinoauricular node, causing heart block which is usually fatal; occasionally intra-cardiac administration of epinephrine restored the heart beat and blood pressure. Subparalyzing doses can be repeated intravenously at frequent intervals without evidence of cardiac irregularity, cumulation, or tachyphylaxis or other alterations in the vasodepressor effect. The cardiotoxic concentrations lie outside the realm of therapeutic needs and the margin of safety is comfortably wide.

Since subparalyzing doses do not cause arrest of respiration, Tolserol is of particular interest as a muscle relaxant. In this respect, Tolserol differs from curare and similar muscle-relaxing agents which do not produce paralysis without simultaneous respiratory depression or arrest.

Ey tetanic stimulation of the cut sciatic nerve in situ, it has been shown that Tolserol in relaxing dosage has only a very slight curare-like action, i.e. depression of myoneural transmission. Berger found no curare-like action of Tolserol with single shock stimulation of somatic nerves. Although the exact mode of action is a matter of speculation, the chief sites of action of the drug seem to lie in the spinal cord and brain stem, particularly the internuncial neurons. Its effects on cortical synapses are dependent upon much higher concentrations.

#### THERAPEUTIC APPLICATIONS

PARKINSON'S SYNDROME: Berger and Schwartz found that tremor and rigidity were lessened in some patients with Parkinson's disease following oral administration of Tolserol. Although the ef-

fect was not as spectacular as that observed after parenteral administration, it was of longer duration and did not cause any side effects. However, some of the patients derived only little benefit from Tolserol, possibly because of too low dosage, incomplete absorption or insensitivity to the drug. Best results were obtained when drugs of the atropine class were administered along with oral Tolserol. It has been reported that either intravenous or oral treatment with Tolserol abolished the tremors and diminished the tone of Parkinsonism.

MULTIPLE SCLEROSIS: In multiple sclerosis spasm, pain and diplopia have been reported improved and strength increased following Tolserol orally. In other instances the tremor has been increased by the administration of the drug.

HEMIPLEGIA: Berger and Schwartz reported striking recovery of some of the voluntary movements of the paralyzed limbs of hemiplegic patients with paralysis that had been stationary for four to seven years. An effect was apparent within ten to twenty minutes after oral administration of Tolserol, although maximum benefit was usually not obtained until after two to three days of medication.

#### OTHER SPASTIC AND PAINFUL CONDITIONS:

The oral administration of Tolserol has produced beneficial results in various other conditions accompanied by muscular spasm, such as arthritis of the cervical part of the spine, subacromial bursitis, pain low in the back, osteoarthritis of the hip joint and similar conditions. It has frequently relieved both spasm and pain due to spasm. The action was sometimes transient and of short duration; at other times it was prolonged indefinitely.

TETANUS CONVULSIONS: In non-paralyzing doses Tolserol effectively antagonized strychnine convulsions. It also counteracted prenarcotic excitement and increased the duration of barbiturate anesthesia.

In the early experimental studies by Berger, he concluded that Myanesin is apparently quickly metabolized or changed to a physiologically inactive compound in the body. The drug does not possess cumulative action and tolerance to it did not occur.

It has been reported that in dogs it is necessary to inject continuously after equilibration, 1.0 to 2.0 mg. per kilogram of body weight per minute intravenously in order to sustain a constant blood concentration. Urine of dogs contains only small quantities of free Tolserol even after large single intravenous injections, within 7 hours but 31 to 42 per cent of the administered dose is excreted in

the urine as a conjugated compound (probably glucuronide). Little or no further excretion occurs in 24 hours.

#### DOSAGE AND ADMINISTRATION

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Tolserol may be administered by either the oral or the intravenous route; however, the tablets are recommended for most therapeutic purposes. The suggested oral dosage for adults is one gram (four 0.25 gram tablets) three to five times daily. However, dosage may be adjusted at other levels. For children proportionately smaller doses should be used.

Since Tolserol has a bitter taste, it may sometimes be difficult to administer the tablets to children. For a palatable dosage form for oral administration, it is suggested that the drug be suspended in a suitable vehicle. The following formula for a palatable preparation for oral administration of Tolserol is suggested:

Tolserol	4	Gm
Propylene Glycol	25	cc.
Syrup of Cherry	25	cc.
Distilled water, to make	120	cc.

30 cc. doses equivalent to 1 gram of the drug are given.

Due to its low solubility in water (1.09 grams per 100 cc.), Tolserol can be suspended with some agent such as acacia, in order to get the dose in a suitable volume such as one or two teaspoonfuls. This suspension may be 10 to 20 per cent Tolserol. If the powder is not available, the pharmacist may pulverize the required number of tablets, mixing the powder and the vehicle, and dispensing with a "shake" label.

For intravenous use in diagnosis, manipulative procedures or therapy, Tolserol powder in a 2 per cent solution in isotonic solution of sodium chloride should be used. Depending upon the rate of injection, from 50 to 150 cc. of a 2 per cent Tolserol solution is usually required in adults. Before administration the patient should be tested for the presence of horizontal and vertical nystagmus, and this testing continued throughout the injection. The injection is started at a rate of 30 drops per minute using an intravenous drip apparatus and if no unusual effect is observed or subjective reactions reported, the rate may be increased to 40 drops per minute until a therapeutic effect is obtained or certain side effects occur. As the effective level is approached, there is an increase in the amplitude and ease of elicitation of horizontal nystagmus, and rotary and finally true vertical nystagmus appear. For most cases this constitutes a useful clinical sign of the existence of the desired therapeutic level.

#### AVAILABILITY

Tablets of Tolserol, 0.25 grams each, are available for oral administration in bottles of 100 and 1000 from E. R. Squibb and Sons. The drug is also available in powder form for preparation of solution for intravenous administration. A solution of the powder (not sterile) may be prepared by dissolving the powder in an isotonic solution of sodium chloride and sterilizing by autoclaving for 20 minutes at 121.5°C. If true tonicity is desired 0.6 per cent isotonic solution of sodium chloride should be used.

A 10 per cent solution in ampules is available from British Drug Houses under the trademark name "Myanesin."

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## MEDICINAL and PHARMACEUTICAL DEVELOPMENTS in 1948

By C. M. Suter, Sterling-Winthrop Research Institute, Rensselaer, N. Y.

At the midyear meeting of the American Pharmaceutical Manufacturers Association it was estimated that the drug industry in this country spent at least \$50 million for scientific research during the preceding year. Another \$22 million was required for scientific control of production. About one half of the total expenditure in scientific activities was made by pharmaceutical manufacturers. The research budget has increased 25% since 1945.

In addition to the regular divisional programs at Chicago and Washington, the Division of Medicinal Chemistry of the American Chemical Society held its first symposium at Ann Arbor during June. This meeting was exceptionally well attended by both pharmacologists and chemists. It is expected that another meeting will be held in 1950. One week of the Gordon Conferences at Colby College during the summer was devoted to topics of interest in the medicinal chemistry field. The subjects discussed included germicides and fungicides, schistosmiasis, filariasis, amebiasis, virus diseases, cancer, and brucellosis. Several symposia were held under the auspices of the New York Academy of Sciences which dealt with new developments in the drug field. Topics included the chemotherapy of filariasis, amino acid excretion, and newer synthetic analgesics.

The Nobel Prize in Medicine and Physiology for 1948 was awarded on Dec. 10 to Paul Mueller for his contribution to the discovery of DDT. An example of its effectiveness in controlling epidemics is the report that malaria in Greece has been reduced from 1,000,000 to 50,000 cases per year by combined use of antimalarial drugs and DDT. Much of the latter was spread by airplanes.

Progress was made during 1948 in so many fields both in the development of new drugs and in the improvement of old ones that only the more striking advances can be described in this review. Emphasis will be placed on products which have reached the marketing stage or at least have some clinical trial rather than those still undergoing laboratory study.

#### Antibiotics

The preliminary clinical report available last year that procaine penicillin was a useful salt of \*Reprinted from Chemical and Engineering News 27:18 (Jan. 3, 1949)

the antibiotic for maintenance of blood levels has been confirmed and the product is marketed on a large scale. A further advance consisted of incorporating procaine penicillin in oil containing aluminum stearate which provides a thixotropic medium. Blood levels are reported to be maintained for 96 hours by a single injection of this preparation. Further studies also appeared dealing with the effect of caronamide in maintaining penicillin levels in plasma. Here the presence of the antibiotic is prolonged by inhibition of its urinary excretion by the caronamide (C6H5CH2 SO2NH-C6H4COOH,  $\alpha$ -toluenesulfonamidobenzoic acid).

It has been found that if penicillin is produced in a synthetic medium containing a trace of radioactive sulfur (S35) as sulfate this becomes incorporated into the penicillin. The ratio of radioactive sulfur to ordinary sulfur is the same in the penicillin as the medium. Such penicillin may prove valuable in pharmacological studies. Culminating years of effort on the part of the editors and those active in penicillin research the comprehensive monograph on penicillin chemistry is being published by the Princeton University press. Papers on penicillin researches are also beginning to appear in the journals here and abroad.

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A new and better tolerated form of streptomycin, dihydrostreptomycin, has just been made available commercially. Excellent progress has been made in determining the fine points of the structure of streptomycin and related compounds. It is now certain that streptobiosamine is attached by a glycosidic linkage to streptidine at position 4. The configuration of streptobiosamine has been determined and streptidine has been synthesized from D-glucosamine. In a recent clinical report it has been stated that the dose of streptomycin previously used in tuberculosis therapy can be halved without reduction in the therapeutic effect.

It has been known for some time that strains of organisms resistant to streptomycin develop on repeated subculture. In recent work two types of variant have been isolated from Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa, and Proteus morganii; one type of variant is resistant to streptomycin and will grow in either the presence or absence of the antibiotic whereas the second type will grow only when it is present, having become dependent upon it. These results were interpreted to be in harmony with the concept of antibacterial agents being metabolite antagonists. For the dependent strain, streptomycin was an essential metabolite and about the same concentration was required for growth as repressed growth in a sensitive strain. Another

antibiotic, actidione, has been found as a product of Streptomyces griseus. This compound consists of 2,4-dimethylcyclohexanone and glutarimide nuclei linked by a two-carbon chain bearing a hydroxyl. Actidione is active against yeasts and fungi and may be useful in controlling fungous infections of plants.

Important new antibiotics that are under chemical and clinical investigation include aureomycin, which is reported to be effective against rickettsial diseases, undulant fever, and some virus infections; aerosporin, which appears to be more active against whooping cough; and chloromycetin, which in clinical trial has shown promise against three varieties of typhus, Rocky Mountain spotted fever, and typhoid fever. Chloromycetin was originally found in the culture medium of an actinomycete isolated from soil obtained from Venezuela. Independently it was found to be produced by a similar or identical organism isolated from a compost soil at the Illinois Agricultural Experiment Station at Urbana and isolated in crystalline form from this source. The organism was found to be closely related to Streptomyces lavendulae, producer of streptothricin. Information on the structures of these compounds is not yet available. The promising results obtained with the new antibiotics have been widely publicized in newspapers and popular magazines.

#### Sulfonamides

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Considerable interest was aroused, particularly in the popular press, during the polio epidemic last summer by the announcement that N-(2-thiazolyl)-phenol-4-sulfonamide showed promise as an antivirus agent. This was based on results obtained in mouse infections and no extensive clinical trial results are yet available.

Sulfaquinoxaline is undergoing extensive trial as a prophylactic for coccidiosis, a common disease of poultry. During the cholera epidemic in Egypt phthalylsulfacetimide was tried on a considerable number of patients with what appeared to be good results although a statistical check was difficult. The compound is also under trial in ulcerative colitis.

There is some evidence that combination therapy utilizing two or three sulfonamides offers advantages over a single compound. Since the solubility of each compound remains the same and approximately only one third as much of each one need be used in the mixture the occurrence of crystalluria becomes less likely.

#### Antimalarials

Early in World War II samples of miscellaneous organic compounds were collected from university

laboratories and subjected to screening as antimalarial agents. Some of the compounds which
showed activity were 2-hydroxy-1,4-naphthoquinone derivatives. This led to the synthesis of
hundreds of related compounds; some of these
showed excellent activity against bird malaria but
were degraded too rapidly in man to be effective.
However, by stabilizing the molecule through the
introduction of a hydroxyl group into the side chain
attached to the naphthoquinone nucleus, a compound
was finally prepared which showed clinical activity
in a few cases when given by injection. It is of considerable theoretical interest that a compound containing only carbon, hydrogen, and oxygen should
show chemotherapeutic action against malaria.

In further work on Mannich bases derived from p-aminophenol it has been found that the compound having most promise as an antimalarial agent has the 7-chloro-4-quinolyl group attached to the amino substituent of the phenol. The diethylaminomethyl group is the aliphatic substituent in the phenol nucleus.

#### Vitamin B12

The outstanding development during the year in the vitamin field was the announcement of the isolation of a new crystalline compound from liver which is reported to have remarkable activity in the control of pernicious anemia. Pending more knowledge of its chemical structure it has been designated vitamin B12. Isolation was greatly facilitated by discovery of a parallelism between the LLD factor in liver extract required by Lactobacillus lactis Dorner and the antianemic activity of the same material. The new compound is unique among vitamins in that cobalt is a constituent. It appears to be in the form of a coordination complex. Phosphorus and nitrogen are also present. This compound takes on added importance with the recent discovery that it is either identical with the animal protein factor or an important element of this factor. The probable availability of the vitamin has been markedly increased by discovery of a method for isolating it from the mold which produces streptomycin. What may be the same vitamin has also been isolated from a "nonmotile, rod-shaped" organism found in the litter of a hen house.

Preliminary clinical reports indicate the high antianemic potency of the vitamin and also its value in treating a spinal degenerative condition sometimes accompanying pernicious anemia. Other investigators have found it to be active against several neurologic disorders accompanying pernicious anemia where folic acid had no effect. It is also reported to be effective in treatment of tropical sprue.

Assays of commercial liver extracts for their vitamin B12 content showed a variation of more than tenfold between the samples having the highest and lowest potency based on LLD units. Hitherto there has been no satisfactory laboratory procedure for quantitative determination of the antianemic factor. As a rough approximation, one microgram of vitamin B12 corresponds to one USP unit. However, it is not established that the new vitamin is the only material present in liver extract which is effective against pernicious anemia.

#### **Antihistamine Agents**

Intense activity continued during the year in the development of antihistaminics. Most of these compounds have in common the presence of a dimethylamino group and many of them are ethylenediamine derivatives. Compounds recently put on the market or undergoing clinical trial include 2-(dimethylaminoethylamino)-pyridine derivatives having as the second substituent on the aminopyridine nitrogen 2-thenyl-, 5-bromo-2-thenyl-, 5-chloro-2-thenyl-, 3-thenyl-, and 4-methoxybenzyl-. Other structural types reported to have value include N-(1-pyrrolidylethyl)phenothiazine, a-phenyl-2-pyridylmethyl diethylaminoethyl ether, the related  $\alpha$ -phenyl- $\alpha$ -methyl-2-pyridyl dimethylaminoethyl ether, 1-phenyl-1-(2-pyridyl)-3-dimethylaminopropane, N-(4methoxybenzyl) - N - (dimethylaminoethyl)-2-aminopyrimidine, 2-(phenylbenzylaminomethyl)-imidazoline, N-(2-thenyl) - N - (dimethylaminoethyl)phenylamine, N-(dimethylaminoethyl)-N-benyzl-2-aminothiazole, and 2-methyl-9-phenyl-2,-3,4,9tetrahydro-1-pyridindene. No doubt still others will soon make their appearance. The type of development which required perhaps 30 years in the barbiturate field will apparently be completed in six or seven years in the antihistaminics. However, only some years of additional clinical use will determine which compounds will be most valuable. One comparative clinical trial of eight of the drugs showed that they did not differ greatly in effectiveness; however, the response to any one drug varies from patient to patient and frequently a drug which failed or caused severe side effects in a given case could be replaced by another with good results. This points to the desirability of having a considerable number of antihistamine agents available, thus increasing the prospect that a particular allergic condition can be controlled.

The interest in procaine as an intravenous analgesic continues to grow. Thus far it has been reported to relieve pain in arthritis, bursitis, fractures, and sprains. To this list may be added, ac-

cording to the report of a recent clinical experience, the alleviation of pain in cancer patients where large doses of morphine were ineffective. In view of the rapid metabolism of procaine the prolonged analgesic action exerted is difficult to explain.

#### Other Products

A number of other compounds which show promise as potential medicinal agents can only be mentioned. High analgesic activity is exhibited by 1,3dimethyl-4-phenyl-4-propionoxypiperidine which is on clinical trial. Phenylacetylurea shows marked anticonvulsant action and in preliminary clinical work shows promise against grand mal, petit mal, and psychomotor seizures. Recently 5,5-diethyl-3-methylhydantoin has been introduced as an anticonvulsant having low hypnotic action. The dextro isomer of 5-methyl-5-phenylhydantoin is less toxic than the levo form and has a better therapeutic ratio. The activity of 5-phenyl-5thienylhydantoin is comparable to that of the diphenyl derivative. Two new mild sedative agents, 3,3-diethyl-2,4-dioxopiperidine and 3,3-diethyl-2, 4-dioxotetrahydropyridine, have recently been introduced. The latter is also a hypnotic. It has been found that \$-(2-methoxyphenyl)-isopropylmethylamine shows about one twentieth the broncho-dilator action of epinephrine but only twothousandth its pressor action. A relatively simple basic ester, diethylaminoethyl cyclopentanecarboxylate, has been reported to have muscle-relaxant action. A new local anesthetic, 2-methylpiperidylpropyl 4-cyclohexoxybenzoate, which was first mentioned in the chemical literature two years ago has now reached the market. Local anesthetic activity has been found in a series of 1-dialkylaminoethoxy)-isoquinolines which warrants extensive study.

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Preliminary results indicate that sodium gentisate is at least as active an antirheumatic agent as the salicylates. Since salicylic acid is oxidized to gentisic acid in the body, salicylate therapy may be effective through this oxidation product. Recently sodium 2-methyl-7-ethyl-4-undecyl sulfate has been found acceptable as a sclerosing agent.

A number of favorable clinical reports have appeared in British journals regarding the use of p-aminosalicylic acid in tuberculosis. Results of tests in this country have not yet appeared. However, its preparation from m-aminophenol has been described in both American and Swiss journals. Some time ago it was found that the crude drug podophyllin exerted a pronounced effect on sarcoma cells in mice. Hence, the isolation of a new active compound peltatin from the resin represents a step forward. Podophyllotoxin was already known to be active.



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## QUERIES

EDITED BY EVLYN GRAY SCOTT, CHIEF PHARMACIST, ST. LUKE'S HOSPITAL, CLEVELAND

E. M. of Akron, Ohio, asks for formulas and methods of preparing solutions containing sodium lactate for parenteral use.

The two solutions in general use are one-sixth molar Sodium r-Lactate Solution and Sodium r-Lactate-Ringer's Solution (Hartmann's Solution). During the past two years, a third formula known as Darrow's Solution, or a modification of it, has been used.

#### SODIUM LACTATE SOLUTION

Quoting from Hartmann, Alexis F.: Theory and Practice of Parenteral Fluid Administration, J.A.M.A., 103: 1349, 1934, "This solution can be made most conveniently in a concentrated form: i.e. as a molar solution, which may later be diluted as desired. Molar sodium lactate may be prepared by neutralizing 100 cc. of lactic acid U.S.P. with concentrated carbonated free sodium hydroxide (approximately 40 per cent), phenol red being used as an indicator. The solution is made up to about 800 cc, with distilled water and heated to the boiling point for from thirty to forty minutes, small amounts of alkali being added meanwhile as needed to neutralize the lactic acid formed through hydrolysis of the anhydride. The solution is then made up to 1000 cc. with freshly distilled water, filtered through a glass disk, sterilized in an autoclave at 15 to 20 pounds pressure for thirty minutes, and preserved in stoppered flasks or in sealed ampules."

Another formula for the preparation of a concentrated solution of sodium r-lactate, may be found in THE BULLETIN, July-August, 1945, page

#### CONCENTRATED SODIUM LACTATE -RINGER'S SOLUTION Hartmann's Solution

Lactic Acid U.S.P.
Sodium Hydroxide C.P., carbonate-free saturated solution, enought to neutralize the acid and anhydrides.

60 cc.

Phenolsulfonphthalein Solution
0.6%
2 drops
Calcium Chloride
5 Gm.
Potassium Chloride
10 Gm.
Sodium Chloride
150 Gm.
Freshly Distilled Water, to make 1000 cc.

The ingredients with the exception of the chlorides are boiled together at least a half an hour to break down the anhydrides. Alkali is added as needed to keep the solution just alkaline. After the salts are added, adjust the water to the proper amount. Sterilize by autoclaving. Dilute 1:25 as needed for use.

#### DARROW'S SOLUTION

1.	Potassium Chloride	2 Gm.
	Sodium Chloride	3 Gm.
	Sodium Lactate, molar	40 cc.
	Distilled Water	710 cc.
2.	Potassium Chloride	2 Gm.
	Sodium Chloride	3 Gm.
	Sodium Lactate, 1/6 molar	250 cc.
	Distilled Water	500 cc.

The above formulas are from the article by Govan, C. D., Jr. and Darrow, D. C.: The Use of Potassium Chloride in the Treatment of the Dehydration of Diarrhea in Infants., J. Pédiatrics; 28, May, 1946.

#### **BUTLER'S SOLUTION**

A modification of the above formulas so that the total potassium chloride is lower and that there is less sodium chloride than potassium chloride, is called "Butler's Solution."

Sodium Lactate	2.2 Gm.
Sodium Chloride	0.6 Gm.
Potassium Chloride	0.9 Gm.
Dipotassium phosphate	0.3 Gm.

Dissolve in 50 cc. of distilled water and sterilize by autoclaving. Dilute for use by adding to one liter of 5% or 10% sterile dextrose solution.



## HOSPITAL PHARMACY DIVISION

#### AMERICAN PHARMACEUTICAL ASSOCIATION

A PROGRESS REPORT By Robert P. Fischelis

Most members of the American Society of Hospital Pharmacists know that the American Pharmaceutical Association created its Division of Hospital Pharmacy in cooperation with the American Society of Hospital Pharmacists in order to give special services to the growing number of hospital pharmacists who are members of both organizations and whose specialty is among the most rapidly developing phases of American pharmacy.

As Don Francke has well pointed out in his editorial in the July-August (1948) issue of the A.S.H.P. BULLETIN, it behooves all who are interested in the development of American pharmacy to keep their eye on the increasing hospital facilities which are being made available to smaller communities throughout the length and breadth of the United States.

The Hill-Burton law, which was designed to make hospital facilities available to sections of the United States which have never before enjoyed the advantages of a community hospital, seems to be working out very well. Many communities have surveyed their health facilities and where they have found adequate hospital services lacking, they have combined the energies of all concerned to provide such facilities, partly at their own expense and partly with the cooperation of the federal government. This is a form of participation in the spread of adequate medical services to which very few people object and which very many embrace as the means of making better medical care available to more people.

Regardless of the size of a hospital, it must have pharmaceutical service somewhere along the line. If the hospital is large enough to warrant the inclusion of a well equipped pharmacy, it must also have a well trained pharmacist. If the amount of pharmaceutical service to be rendered is not sufficient to warrant the employment of a full-time pharmacist, it is quite possible that one or more pharmacists in the community where the hospital is organized can arrange to supervise and supply the pharmaceutical service needed. Less frequently perhaps, prescription service is requested of local pharmacists, but the dispensing

of ward medication, while in the hands of nurses, should have the consulting service of qualified pharmacists.

To the extent that the offer of services of pharmacists of the United States are accepted by these hospital boards, either in a part-time or full-time capacity, the quality of pharmaceutical service will become adequate.

But what is adequate pharmaceutical service in a hospital and who determines adequacy? For other hospital services, the answers to these questions are very prompt and to the point. The American College of Surgeons has set up standards for nursing and medical services, intern service, roentgenological, pathological and the many other medical specialty services. It has also alluded to standards for pharmacies in its general list of service requirements, but all pharmacists know that the standards so far offered and the implementation of these standards has been less than adequate.

It is therefore not surprising to find the Policy Committee of the Division of Hospital Pharmacy strongly advocating the establishment of hospital pharmacy standards. Their early adoption by standardizing agencies and the promulgation of these standards in the individual hospitals, with the expectation that we will have efficiency ratings in hospital pharmacy as well as in the other specialties, are not very far off. The discussion of this subject was one of the high points of accomplishment of the meeting of the Policy Committee of the Division of Hospital Pharmacy on October 23 and 24. This year the committee consists of W. Arthur Purdum, Chairman, Don E. Francke, Leo Godley and John Zugich, all representing the A.S.H.P.: Earl R. Serles and Robert P. Fischelis representing the A.Ph.A.; Worth L. Howard representing the American Hospital Association and Sister Mary Adelaide representing the Catholic Hospital Association.

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Present at the October meeting, in addition to the members of the committee were Miss Gloria Niemeyer, Assistant Director of the Division, Mr. Alexander Milne, United States Public Health Service, Division of Hospital Facilities and Dr. Charles Dolezal, who is in charge of the hospital pharmacy institutes for the American Hospital Association Dean Serles was unavoidably detained in Chicago, but was represented by Dr. Ernest Little, President of the A.Ph.A.

The committee reviewed the adequacy of the agreement, which had been drawn up by the A.Ph.A. and the A.S.H.P. for governing the Division. It was generally accepted that the agreement furnishes an excellent framework on which the A.Ph.A.'s services to hospital pharmacy can be built solidly in cooperation with the A.S.H.P. It was pointed out in the report of the Director that by agreement with the officers of the A.S.H.P., the Division has discharged most of the clerical and administrative functions of the Society such as keeping a roster of members, collecting dues, issuing necessary information, carrying on the work of producing THE BULLETIN under the supervision of the editor, who is located at Ann Arbor, Michigan.

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There was discussion of the budget on which the Society operates and it was quite clear that the dues paid by members of the Society to the A.S.H.P. would just about take care of publication of THE BULLETIN and routine expense. For 1948 the A.Ph.A. included an appropriation of \$10,000 in its budget for the use of the Division. This provides stenographic and editorial assistance, travel expense and supplies. This grant is in addition to the expense of housing the Division at the A.Ph.A. headquarters building and the use of the library, laboratory, editorial offices and other facilities.

There was general agreement that a good start had been made in establishing the Division on a sound fiscal and functional basis and although everyone was anxious to add to the staff a full-time director of hospital pharmacy activities, it was quite clear after consideration of the financial situation and other factors that such an addition will not be possible immediately. However, it is one of the early objectives toward which we are all working.

Following a full and free discussion by the committee, the following services were recorded as now available and in contemplation: (This does not include the secretarial and editorial functions described above.)

#### l. INFORMATION SERVICE

Through the Division of Hospital Pharmacy, the A.Ph.A. files of current information on basic pharmaceutical problems, which are of service to all classes of pharmacists including hospital pharmacists, are being enlarged. In the specific interest of hospital pharmacists, special stress is being laid upon hospital pharmacy information and the files covering such information are growing constantly through the perusal, clipping and indexing of every important pharmaceutical, medical and allied science publication, both foreign and domestic, that seems to carry worth-while information.

The prompt availability of new texts in the field of pharmacy, chemistry, pharmacology and certain medical specialties to the A.Ph.A. library and its excellent liaison with the Army Medical Library and similar Washington sources of information is another aid to the development of this information service.

#### 2. EMPLOYMENT INFORMATION

The Policy Committee strongly favored the establishment at an early date of an employment service which would be available to both hospital administrators and hospital pharmacists to facilitate meeting of employer and employee. Some activity in this line has been carried on by the Division, but it has largely been a matter of endeavoring to answer urgent requests for help on the part of hospitals and occasionally pointing out openings which have come to the attention of the Division to those who seek employment. Unfortunately, the employment situation has been such that there has been an insufficient number of available pharmacists for the positions which are vacant. It is anticipated that this situation will change when some of the large classes now at the Colleges of Pharmacy will begin to graduate. The Division is lookingforward to the establishment of an employment exchange which will be functioning when these larger humbers of pharmacists become available. Neither hospital administrators nor pharmacists seeking employment should hesitate to contact the Division with their problems now.

#### 3. LIBRARY SERVICE

The Policy Committee favors the development of specific "package information material" for hospital pharmacists requiring data not readily available to them, for the preparation of papers, addresses or bulletins to their respective staffs. This is another development that is in its infancy, but some hospital pharmacists have been supplied with material on loan and a reasonable number of requests can be taken care of in the near future.

#### 4. SURVEYS OF HOSPITAL PHARMACY

In general, it was felt that the Pharmaceutical Survey just completed did not lay sufficient stress upon the problems of hospital pharmacy. It is quite clear, therefore, that any worth-while survey of this specialty will have to be made either through the Division in cooperation with general surveys conducted by the American Hospital Association or the American College of Surgeons under the supervision of qualified pharmacists. The Division will endeavor to supply pharmacy consultant service to hospital organizations and administrators by drawing upon qualified members of the A.S.H.P.

(To be continued)

## Therapeutic Trends



New Trends in Medicine and Pharmacy Include NIKETHAMIDE IN BARBITURATE POI-SONING - COMPARISON OF NEWER ANAL-GESIC DRUGS - ISOLATION OF VITAMIN B12 FROM MOLD - NEW PENICILLIN VEHICLE -PYRROLAZOTE.

#### NIKETHAMIDE IN BARBITURATE POISONING

Use of nikethamide (Coramine) as an analeptic agent in the treatment of barbiturate intoxication is being studied at Queens General Hospital in New York City. In a preliminary report appearing in Annals of Internal Medicine (December, 1948), treatment of barbiturate poisoning is discussed and results of clinical studies comparing nikethamide with picrotoxin are given. The study suggests further recognition and use of nikethamide as a relatively non-toxic, effective analeptic agent in the treatment of barbiturate intoxication. Earlier reports have described unsatisfactory experiences with picrotoxin in the treatment of acute barbiturate poisoning, mainly because of the production of convulsions.

In the experimental studies comparing picrotoxin and nikethamide, a standard method of treatment of barbiturate poisoning was established, the only variation being the choice of one of the two drugs. Using nikethamide, 5 cc. of a 25 per cent solution was given intravenously, followed by 5 cc. every five minutes for the first hour. In addition, a constant amount was given by intravenous drip so that a base line amount of 5 cc. intravenously were given, on the hour. (This is important as the patients tend to relapse otherwise). In more severe cases 5 cc. were given every half hour by the clock, as boosters.

Therapy was continued until the patient had a return of reflexes, and moved spontaneously. Further studies are being carried out, using 10 cc.

of nikethamide every five minutes intravenously until the patient reacts, and large doses are to be continued for some time.

Using picrotoxin, a test dose of 3 mg. was given intravenously. If there was no reaction, 3 mg. was repeated every five minutes for three doses. After a 15 minute interval another series of three injections at five minute intervals was carried out. Therapy was continued thus until the return of reflexes and spontaneous motion. The patient was watched closely for dilating pupils and carried just to the point of muscle twitching. Sodium amytai was at hand in case of convulsions. In cases where coma was not deep, a smaller dose was used as a follow-up with 3 mg. every 15 minutes.

#### NEWER ANALGESIC DRUGS COMPARED

"The Newer Analgesic Drugs; Their Use and Abuse" is the title of an article appearing in the December, 1948 issue of Annals of Internal Medicine, in which Harris Isbell, Senior Surgeon, U.S.P.H.S., Lexington, Ky., compares meperidine (Demerol), metopon and methadone. Since, for many years, morphine has been the most effective and reliable compound for the relief of the more severe grades of pain, there has been little choice of analgesic drugs. However, with the discovery of the three new analgesics in recent years, and with the possibility of the development of new compounds of the same series, the author points out that it is probable that the choice of an analgesic drug will become more complex. In view of this, the literature on these new analgesics is reviewed with emphasis on their advantages and disadvantages, their addiction liability and some of the indications for their use.

Summarizing the article, the author concludes that morphine remains the drug of choice for most conditions requiring quick relief of pain for short periods of time. Meperidine is indicated in cases of pain associated with spasm of smooth muscle, or in persons who do not tolerate morphine well. Metopon is limited to oral use in chronic painful diseases. Methadone can be used in most innot tha cor sho dis

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stances in which morphine is indicated but it is particularly useful in cases requiring pain relief for long periods of time, and for withdrawing drugs from patients addicted to the opiates.

Metopon and methadone (in repeated dosage) are as effective in relieving pain as is morphine. Metopon produces fewer side reactions than morphine whereas methadone causes just as many

side reactions as does morphine.

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Meperidine can often be used in subjects who do not tolerate morphine well, but it is less reliable than the other three drugs. All three of the new compounds are addicting and the same precautions should be exercised in their use as are followed in dispensing morphine.

#### VITAMIN B12 ISOLATED FROM MOLD

Crystalline vitamin B<sub>12</sub>, for the treatment of pernicious anemia, can now be produced by fermentation according to research workers at Merck and Company reporting in Science (December 3, 1948). It has been isolated from the mold, Streptomyces griseus, which belongs to the same species as that which produces streptomycin.

The isolation of vitamin B<sub>12</sub> from liver was first reported last April by the same group. Their research was aided by the clinical investigations of Dr. Randolph West of the Department of Medicine of Columbia University and by the microbiological tests of Dr. Mary S. Shorb of the Department of Poultry Husbandry of the University of Maryland. This ended a 22 year search for the factor in liver that counteracts pernicious anemia. Other medical investigators have confirmed that B<sub>12</sub> can be substituted for liver therapy in treatment of this disease.

Other tests indicate that the new vitamin is an important nutritional item. B<sub>12</sub> speeds the growth and improves the health of poultry and other animals and is one of the more important elements of the so-called "animal protein factor."

Steps are being taken to produce this vitamin in quantities adequate for widespread medical and nutritional use and it will probably be commercially available soon.

#### NEW PENICILLIN VEHICLE

A new absorption delaying vehicle for penicillin is reported by F. H. Buckwalter and H. L. Dickison in the Journal of the American Pharmaceutical Association, Scientific Edition (November, 1948). Because of the need for a repository form of penicillin which could be injected less frequently, the authors searched for a satisfactory vehicle and set up the following criteria for judging such a preparation:

- 1. It must be nontoxic, nonirritating, and nonallergenic.
- 2. It must not affect adversely the stability of penicillin
- 3. It must possess a viscosity to permit withdrawal into a syringe and administration at room temperature.
- 4. It should retard the rate of release of penicillin from the site of injection.
- It should be of such consistency as to prevent settling of suspended penicillin particles.

The ability of various repository preparations of penicillin to maintain serum penicillin levels in rabbits was studied. All preparations investigated contained 300,000 units of penicillin per cc. and each injection consisted of an amount of the preparation which would give 50,000 units of the antibiotic per kilogram of body weight. The authors found the aluminum stearates to be excellent thickening agents for peanut oil. They are water repellant, have excellent thixotropic properties which give good penicillin suspensions and they are effective in small concentrations.

Following the injection of procaine penicillin G (small particles) in peanut oil and 2 per cent aluminum monostearate, measurable quantities of penicillin remained in the serum for over 12 days. The length of time after injection that measurable quantities of penicillin remained in the serum for each of the preparations studied were: for sodium penicillin G in peanut oil-beeswax and procaine penicillin G in peanut oil, about  $1\frac{1}{2}$  days; for sodium penicillin G in peanut oil and 2 per cent aluminum monostearate, about  $2\frac{1}{2}$  days; and for procaine penicillin G (large particles) in peanut oil and 2 per cent aluminum monostearate, 6 days.

#### **PYRROLAZOTE**

Studies in the development of compounds with high antihistaminic activity and low toxicity led to the discovery of the compound known as pyrrolazote (B-pyrrolidine-ethyl-phenothiazine hydrochloride). The pharmacologic properties of pyrrolazote were studied in detail by workers at the Upjohn Company and a preliminary report published in The Journal of Pharmacology and Experi-

mental Therapeutics (October, 1948).

Compared with pyribenzamine, this new compound was effective for a longer period against the action of histamine muscle spasm, it exhibited antianaphylactic properties similar to those of pyribenzamine, and it did not affect the pressor action of epinephrine. Acute toxicity studies in three species showed pyrrolazote to be from one-half to one-twentieth as toxic as pyribenzamine depending upon the route of administration and species used.

PURCHASING FOR HOSPITALS. By Walter N. Lacy, 96 pages, 6" x 9", 1947. Published by Physicians Record Co., Chicago, Ill. Price \$2.25

This book should be very useful to both hospital pharmacists who also hold the position of purchasing agent and to pharmacy interns who are becoming familiar with procurement methods in hospitals.

The author is an experienced hospital purchasing agent and thoroughly covers such pertinent topics as: procurement, cooperative buying, salesmen, complaints, returns, bids, control of stock, purchasing by dieticians and pharmacists, forms and records, prices, invoices, purchases for personnel and even a buyer's Code of Ethics. The book should be well received by anyone seeking well-founded arguments on methods of purchasing.

PLANNING YOUR EXHIBIT. By Janet Lane and Beatrice K. Tolleris, 28 pages,  $7\frac{1}{2}$ " x  $10\frac{1}{2}$ ", 1948. Published by National Publicity Council, 130 East 22nd Street, New York 10, N. Y. Price \$1.00

A pharmacist who plans on preparing a professional display in the hospital or at a convention booth, would profit by the systematic procedures outlined and the tips provided on how to express a theme in an informative yet attractive manner.

CHEMISTRY FOR NURSES. By Raymond E. Neal, 564 pages, 6" x 9", 1948. Published by Mc-Graw-Hill, New York, N. Y. Price \$4.00

Since hospital pharmacists often are required to teach chemistry to student nurses, this text should be of interest to them. The author clearly demonstrates his acquaintance with the application of chemistry to the nursing profession and has a complete yet not too elementary volume.

Inorganic, organic and physiological chemistry are presented in units to provide a 16 week course. Each unit is followed by laboratory exercises and review exercises, which are detachable. The appendix presents many teaching aids, including a suggested outline of the units and a list of practical demonstrations and other visual aids which would fill in very well with the lectures.

TEXTBOOK OF PHARMACOLOGY AND THERA-PEUTICS. By Harold N. Wright, M.S., Ph.D. and Mildred Montag, R.N., M.A. 720 pages,  $5\frac{1}{2}$ ' x 8'', 1948. Fourth Edition. Published by W. B. Saunders Co., Philadelphia, Pa. Price \$4.00

This fourth edition has been revised according to the U.S.P. XIII and N.F. VIII to meet the requirements for a nurses text on pharmacology based on the latest official publications. The book contains more illustrations than previous volumes. It also discusses the pharmacology of the antibiotics and many of the newer drugs, such as, Dilaudid, Methadone, Privine, Tuamine, Benadryl, Pyribenzamine, Pavatrine, Trasentin, and newer uses for Papaverine. A chapter is included on the diseases caused by spirochetes and protozoal infections. The therapy of neoplastic and related diseases is another added feature.

AN INTRODUCTION TO MATERIA MEDICA AND PHARMACOLOGY. By Elsie E. Krug, R.N., M.A. and Hugh Alister McGuigan, Ph.D., M.D., 558 pages,  $5\frac{1}{2}$ " x 9", 1948. Fifth Edition. Published by C. V. Mosby Co., St. Louis, Mo. Price \$4.00

This fifth edition is another text revised in accordance with the changes in U.S.P. XIII and N.F. VIII to meet the needs of student nurses. Many newer drugs are described. The arrangement and classification of material is very comprehensive and the questions for review and suggestions for study following each chapter should be helpful. Sample test situations—an attempt to carry the theoretical study to clinical application—are very interesting.

REMINGTON'S PRACTICE OF PHARMACY (NINTH EDITION). By E. Fullerton Cook P.D., Ph.M., M.Sc. and Eric W. Martin, Ph.C., B.Sc., M.Sc. with more than forty associate editors. Pp. X plus 1511, including index, with over 800 illustrations. The Mack Publishing Co., Easton, Pa., 1948. Price \$17.00 Foreign; \$16.00 U.S.A.

Hospital pharmacists will find this completely comprehensive pharmaceutical text a "must" for their library. The board of experts who have contributed as associate editors by preparing special chapters have supplied a volume of the most upto-date, authoritative data. The book is divided into 15 parts as follows:

Scope, History, Ethics and Literature of

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Technical Operations in Pharmacy Galenicals and Other Pharmaceutical Preparations

Inorganic Chemical Compounds Organic Chemical Compounds Testing and Analysis

Laws Governing Pharmacy
Professional Pharmacy

The Pharmacist in Public Health Services

**Business Methods of Pharmacy** 

Hospital Pharmacy

Manufacturing Pharmacy

**Biological Products** 

Perfumery and Cosmetics

Appendix

Of interest to hospital pharmacists is the chapter on Sterilization included in the technical op-

erations unit. The section on Parenteral Solutions is another first reliable and completely informative unit. It includes a discussion of: pyrogens, cleaning of apparatus, containers to be used for parenteral sterile solutions, air cleaning and air conditioning, preparation of injections, filling of ampuls, sealing ampuls, vials and flask closures, sterilization and control tests, clarity of solutions and labeling.

The chapter on Surface Active Agents is one of the best available precise discussions of the subject. A table of commercially available surface active agents with the industrial name and chemical structure, uses and manufacturer is also included.

The classification of the amines and the amides of organic medicinals on a physiological basis has correlated and clarified the position of these drugs in pharmacology with relation to chemical structure.

The chapter on Hospital Pharmacy has been completely rewritten. It presents a very thorough description of: the pharmacist, his qualifications and duties; the pharmaceutical departmental organization of routine and labor; an analysis of records and reports; comment on the drug policy of a hospital; the arrangement of a hospital pharmacy. The bibliography is that of very recent literature and very complete.

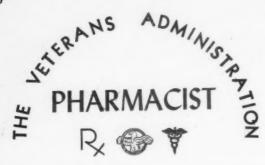
A feature found popular is the proper mention, indexing, classification and pharmacological description of every possible worthwhile proprietary drug

#### PHARMACIST IN 100-BED HOSPITAL

Hospitals in Saskatchewan, Canada having over 100 beds should employ a pharmacist on a full-time basis to be in charge of the dispensary according to a recommendation by the Saskatchewan Pharmaceutical Association. This concerns the government sponsored hospitalization plan which includes the supply of drugs to hospital patients. For hospitals having less than 100 beds, it was recommended that local hospital authorities make an agreement with the local pharmacist whereby the latter assumes the post of hospital dispenser, taking complete charge of the dispensary, buying drugs and other supplies, and handling distribution of stock.

#### A.H.A. SURVEYS SALARIES AND HOURS OF HOSPITAL EMPLOYEES

The salaries of hospital employees increased 10 per cent in 1948, and their hours of work per week declined from the previous year, according to a recent survey by the American Hospital Association. The association recently completed its fourth annual country-wide study of hospital salaries, covering 4,623 hospitals of all types except Federal. George Bugbee, executive director of the American Hospital Association, said that the survey indicates that hospitals have markedly bettered their personnel programs in the past year.



Edited by Eddie Wolfe, Chief Pharmacist, Mt. Alto Veterans Hospital, Washington, D. C.

#### PROCEDURES USED AT VA HOSPITAL PHARMACY, FORT HOWARD, MARYLAND George I. Young

Stock Level: Procurement is the first and most important factor of stock control. This calls for experience because of the technical nature of the material. Even with a Supply Department in the hospital, medicinals need considerable attention from the pharmacist if good quality material is to be obtained and overstocking eliminated. All orders for medicinals should originate from the pharmacy to Supply, for unless the pharmacy has direct control of the ordering, overstocking may result. It is not a function of the administration to decide what will be purchased as pharmacy stock, rather this is a professional function of the pharmacy committee.

A second factor in stock control is the proper alignment of items and all of one item should be placed together. This is necessary for proper

ordering.

A third factor in stock control is the quantity carried in stock of any item. This quantity depends upon the rapidity of use and the length of time which elapses between orders and also the length of time it takes to receive the merchandise after ordering. In order to prevent overstock a period of time should be determined which an order is supposed to last.

Cooperation between doctors and the pharmacist will work for better control of stock. If the doctor will give the pharmacist an idea of the length of time and approximately how long an item will be used the pharmacist will be in a much better position to know how much to order.

Labeling Practices: Much can be said and written about the labeling of prescriptions and ward stock containers. Following are some of my observations from 17 years of work in hospital pharmacies.

The labels on all containers should display the name of the hospital. When the name of the hospital is on the label as well as the name of item

in container it has a tendency to cut down on the disappearance of containers and their contents.

To preserve the labels on glass containers I have tried several protective devices:

a. I have experimented both with orange and clear shellac as a coating over the label. This is satisfactory until one comes to a liquid preparation which is high in alcoholic content. If some of the liquid should spill and run down over the label, especially on ward bottles, the shellac is very soon removed, resulting in a messy label.

b. Parafiin, if melted and applied, is better but it has two disadvantages: (1) One must always have on hand the melted paraffin to put on the label; (2) Bottles containing bathing alcohol or liniment are often placed in hot water before use which melts the paraffin and removes the label.

c. Waterproof tape may be used around the edge of the label to prevent the label from becoming "dog-eared." However, the tape soon becomes frayed and of little advantage.

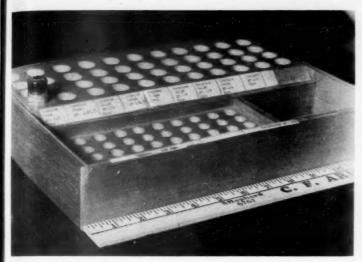
d. We are now following the suggestion given by our Chief Pharmacist in Branch Office. We dissolve the clear or amber plastic caps from acid or ammonia bottles in carbon tetrachloride and apply with a brush. This has the advantage of not being soluble in alcohol, not removed by hot water, and does not peel.

On prescriptions compounded for in- and out-patients, the compounder's initial is placed on the label, usually following the physician's name.

## NARCOTIC TRAY W. C. Anderson, Chief, Pharmacy Section Branch No. 3

The tray is used for stocking narcotics in the ward medicine cabinets. The four back rows are used for stocking tablet triturates and hypodermic tablets which are prepackaged in the pharmacy, twenty tablets to a vial, labeled and sealed with a Cel-o-Seal band. The four rows in the front of the tray accommodates narcotic ampuls. The space at the front right hand corner is utilized to accommodate any excess stock. Trays of this type are now is use at all VA hospitals in this Branch Area. Dimensions of tray may vary to accommodate the size of the hospital.

The tray has been of invaluable assistance to the nurses by reducing time necessary in taking narcotic inventories at change of shifts, since it is only necessary to tilt the vial with the broken seal on its side (not necessary to remove tablets) to complete count, and as long as the seal on other vials are not broken or tampered with, they can be considered to contain the standard amount of tablets.



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Narcotic Tray

In some of our hospitals the Chief Pharmacists have designed a similar tray on a larger scale for storing prepackaged narcotics in the pharmacy vault. The tray was originally designed by Robert Schwartz, M. D., of VA Hospital, Aspinwall, Pennsylvania.



#### STANDARDIZATION OF WARD DRUG CABINETS

Pharmacists H. Verbofsky and S. M. Fortino inspect a standard ward stock container presented by Chief Pharmacist J. S. Thompson at the VA Hospital in Butler, Pennsylvania.

In the background is a typical ward drug cabinet that is stocked with standard jars and bottles. All the ward drug cabinets in the hospital are standardized in this manner.

#### RADIOISOTOPE UNIT ESTABLISHED AT VA HOSPITAL IN NASHVILLE, TENNESSEE

Veterans Administration today has authorized the establishment of a radioisotope unit at the VA Hospital, Nashville, Tennessee.

Opening of the Nashville unit marks another step in VA's program to bring to the veteran-patient the benefits of the peacetime application of atomic medicine, Dr. George M. Lyon, chief of VA's radioisotope section, said.

Research work planned at Nashville will be directed toward development of improved methods for clinical diagnosis and medical treatment of veteran-patients. Radioisotopes to be used initially are radiophosphorous, radiosodium, radioiron and radioiodine.

In this new research technique, a radioactive substance is administered along with the remedial drugs. Distribution of the radio-elements in the body then is checked either by means of sensitive photographic films or with electrical impulse equipment - including the Geiger counter, the device used by engineers in atomic energy plants.

Radioisotope experts from Vanderbilt University will have a close working relationship with the new unit. Because of the unusual opportunities offered by the Vanderbilt University School of Medicine, active work within the unit is expected to start in another week.

The radioisotope program within the VA Hospital will be under the general supervision of a Hospital Radioisotope Committee.

Dr. W. E. Cooper, hospital manager, will serve as chairman, with chiefs of the various hospital professional services as members.

Dr. George R. Meneely, assistant chief of medical services at the hospital, will direct the work of the unit. Dr. Meneely has done outstanding research work with radioisotopes in the field of blood diseases and cardiac problems. He is widely recognized not only in medical research but also in highly specialized radioisotope science.

The Deans Committee in Nashville will be represented in the project by a radioisotope committee composed of three Vanderbilt University faculty members. They are Dr. Howard Curtis, professor of physiology, chairman; Dr. Ernest Goodpasture, dean of the School of Medicine, and Dr. Francis G. Slack, professor of physics.

Dr. Curtis will serve the unit as consultant in biophysics. Dr. Herbert Francis and Dr. Joseph M. Ivie, both of Vanderbilt University, will serve as consultants in radiology.

The Nashville radioisotope unit is the eleventh established by VA. Other units are located in VA hospitals at Los Angeles, San Francisco and Van Nuys, California; Framingham, Massachusetts; Ft. Howard, Maryland; New York City, Cleveland, Chicago, Minneapolis and Dallas.



Dispensary in VA Hospital Legion, Texas

### DELIVERY CART SAVES PHARMACIST'S TIME

By Ervin C. Wells, Chief Pharmacist VA Hospital, Legion, Texas

This cart was made by station employees. A frame was built to fit on a platform truck with large rubber-tired wheels, and made of one-inch angle iron, with a rail of one-inch strap iron on the top shelf, which is very suitable for gallon bottles. The shelves are made of heavy aluminum and left unpainted and will resist alcoholic solutions, etc. The two bottom shelves were placed in height to conveniently hold the wire drug baskets. These wire drug baskets are 12" x 18", have six compartments and will hold bottles from one quart down to small items. The gallon bottles are placed on the top shelf. The cart (shelves excepted) has three coats of white enamel.

The pharmacy supplies nine wards, operating room, two pneumothorax rooms, dressing room, dental clinic, clinical laboratory and eye, ear, nose and throat clinic -- a total of sixteen stations. Heretofore these baskets were sent to the pharmacy and picked up by ward attendants. The average number of baskets per day was 10, and a very conservative estimate of 12 minutes a trip for 20 trips a day would be a total of 240 minutes (4 hours). Also, these ward attendants would bring the baskets and pick them up one at a time which would mean 20 interruptions a day; in other words, the pharmacist or helper would have to stop his routine work to receive and deliver these baskets to the ward attendant. This took at least 100 minutes daily.

The drug cart started operating Monday, November 22, 1948, which was a very heavy day as we had requests for 83 items (7 gallon and 4 prescriptions included in count). The cart was operated by the pharmacist helper. It required 35 minutes to pick up and 40 minutes to deliver, a total of 75 minutes.



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Conclusion--The 75 minutes required for the pharmacist helper to pick up and deliver just about equaled the time required to receive and deliver baskets to the ward attendants at the pharmacy.

On the above conservative estimate this operation saved 4 hours of the attendant's time which enabled them to do their regular duties and at the same time be available on the wards for the patients care and emergencies.

This operation of the drug cart also allows the pharmacist to work uninterrupted and enables him to be free for his professional duties and improve the working conditions for the filling of Rx's and compounding preparations.

### SYNTHETIC DETERGENT CREAM (S. D. C.)

Joseph E. Birmingham, Chief Pharmacist, VA Regional Office, Roanoke, Va.

Sodium Sulfate	100.
Cetyl Alcohol	70.
Sodium Lauryl Sulfate	200.
Sodium Bicarbonate	5.
Water	580.

Melt the cetyl alcohol.

Dissolve the sodium lauryl sulfate and sodium bicarbonate in 400 cc. of the water by the aid of heat. Dissolve the sodium sulfate in the remainder of the water and warm this solution.

While stirring the sod. lauryl sulfate solution, add the melted cetyl alcohol. To this mixture add the sodium sulfate solution slowly stirring constantly. Stir vigorously for several minutes and allow to cool. Add Oil of Lemon or Benzaldehyde for desired fragrance.

## NOTES AND SUGGESTIONS

EDITED BY

#### GEORGE L.PHILLIPS

ASSISTANT CHIEF PHARMACIST UNIVERSITY HOSPITAL, ANN ARBOR, MICHIGAN

#### DENTAL CARIES PREVENTIVE

Quite recently a good deal of publicity has been given to mouth washes or rinses for the prevention of caries. A formula that was worked out at University Hospital is given below. Nitrogen, said to be a prime factor is furnished by the urea, and the Duponol, of course, serves as a cleansing agent.

Duponal C Powder	7.5 Gm.
Urea	20.0 Gm.
Cinnamon Water	250.0 cc.
Soluble Saccharin	0.1 Gm.
Amaranth Solution 5%	0.25 cc.
Distilled Water, to make	1000.0 cc.

#### CLEANING FRITTED GLASS FILTERS

The Corning Glass Company now recommends the use of hot concentrated sulfuric acid plus sodium or potassium nitrite for removing organic materials from fritted filters. They also claim that cleaning solutions containing bichromate tend to permanently stain fritted filters. It is the opinion of the writer that bichromate cleaners may also permanently stain filters of the Selas porcelain type.

Other cleaning suggestions for fritted filters are

1. Fats - carbon tetrachloride.

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- 2. Albumen hot ammonia or hot hydrochloric
- 3. Glucose hot mixed acid  $(H_2SO_4 + HNO_3)$ .
- 4. Mercury residues hot nitric acid.
- Silver chloride ammonia or sodium hyposulfite.

#### PYREX FRITTED FILTERS

Pyrexfritted glass filters are once again available in a variety of diameters and porosities. Porosity grades available are extra coarse,

coarse, medium, fine, and ultra fine. The ultra fine filter is recommended for general bacterial filtration and the grades might prove useful for prefiltering or simple clarification. For further information contact: Corning Glass Works, Corning, New York.

#### NEW BARREL GAUGE

A conventional visible float level barrel gauge has been improved by the addition of a durable plastic graduated tube containing a red cork float. This plastic tube replaces the fragile type glass gauges that we have all probably had trouble with at one time or another. This gauge also incorporates an improved automatic safety check valve which prevents loss or hazard in case of fire or breakage. The price is \$3.00, faucet not included.



Source: Mastercraft Products, 60 South Street, Boston, Mass. The author wishes to acknowledge credit for this suggestion to former A.S.H.P. president, John J. Zugich of Grace New Haven Hospital, New Haven, Connecticut.



EDITED BY
HERBERT L. FLACK, CHIEF PHARMACIST
JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA

#### COST OF OPERATING THE PHARMACY

Based on a patient day rate of \$16, Doctor Albert W. Snoke, director of the Grace-New Haven Hospital has listed the following expenses involved in maintaining that patient for one day in the hospital (from Hospital Management, December 1948, page 4):

Nursing Care	\$5.55
Food	2.24
<b>Administrative Overhead</b>	1.78
Laundry	.96
Housekeeping	.86
Light and Heat	.85
Pharmacy	.81
Maintenance	.77
X-Ray Facilities	.65
Anesthesia Facilities	.19
Records	.17
Social Service	.10
Laboratories	.09
Physical Therapy	.06
Miscellaneous	.55

In this same article, the question is raised as to how many people can face a hospital bill computed on a \$20, \$15, or even on a \$10 per day basis. This statement is possibly food for thought for those who desire a form of socialization of medical practice, although it was originally used to show the cost of operation and to attempt to obtain larger payments from certain organizations that pre-pay hospital expenses at below cost rates.

The Hoover Commission report on federal medical services indicates that to cut costs of medical care and hospitalization, there must be much more money spent on the prevention of sickness and disease. The thought is introduced here that if the average family spent less for medical care of non-hospitalized illnesses, brought about by federal monies to increase methods of sanitation and by a federal subsidized program of preventive medicine, the aver-

age family would be more able to afford the cost of hospital care when it is absolutely required, as for instance for surgical care.

The Hoover Commission report shows, however, that the government is apparently thinking in the opposite direction and is spending huge sums of money to build new hospitals. The report goes on to show that the quality of government medical care is excellent in some places and not so good in others. The lowered standards of medical care are due to shortages of medical and nursing personnel, caused according to the report, by lack of unified hospital planning. The report advocates full integration of the federal hospital system with non-federal hospitals.

To return to Doctor Snoke's statistics, we note that the pharmacy is the seventh most costly facility or service in the hospital. What can we in the pharmacy do to reduce this patient day cost? In a hospital with 10,000 patient days, the reduction of pharmacy costs of \$100 per month would reduce the patient day cost by one cent. This cost could be reduced by just manufacturing vials of Procaine Injection in the average hospital, and it could be further reduced by continuing such manufacturing procedures until the majority of pharmaceutical preparations used in the hospital are manufactured in the pharmacy.

We in hospital pharmacy are getting better organized every month that we operate. We have an excellent source of disseminating information through THE BULLETIN. The better organized we can become, the better we can serve the health needs of the American public, by reducing the patient day costs of operating our department and in turn reducing over-all costs of operating the hospital, thus providing hospital care at as low a cost as possible.

In a recent survey of the reports from 73 hospital pharmacists, the cost of drugs was averaged at 63 cents per patient day. Since this information included patient day drug costs of from about 10 cents to about \$1.50, the highs and lows were thrown out and a drug cost of 54+ cents per patient day was arrived at as an average. A possi-

ble discrepancy in this figure is the absence of knowledge as to whether out-patient costs were included, and whether sterile products preparation costs were included, each of these costs influencing the patient day cost of drugs if collected on a national basis for producing an average cost. Thus it is possible that these statistics are not correct, and new information is presently being tabulated to obtain some calculation of cost of drugs per patient day.

In one 1500 bed hospital, with the inclusive rate set-up, the patient day cost was listed at 52.4 cents for drugs and supplies or 11.9 cents per patient day not including cost of antibiotics. This is indeed an excellent cost and it offers something for hospital pharmacists to strive to duplicate. (Hospital pharmacists interested in this statistical information are requested to correspond with

Mr. Flack.)

#### DIABETES DETECTION DRIVE

This Drive of the American Diabetes Association, Inc., was initiated by Diabetes Week in December, 1948. According to information presented, there are some one million identified diabetics and about another million diabetics who are unidentified in these United States. Diabetes is eighth in rank among causes of death, and is outranked as a major disease only by heart disease, cancer, and rheumatism.

One of the major tasks of this Association is to support research on an injected insulin preparation that will have or will approximate the automatic action of natural insulin released by the pancreas, that will release the right amount in response to a rise in blood sugar.

### Methods of Effecting Solution of Chloretone.

By R. E. Schmitz, F. A. C. A.

Chlorobutanol under its popular name of Chloretone, has long been an embarrassing problem to practising pharmacists. In some localities physicians frequently prescribe Chloretone in aqueous solution with Ephedrine Sulphate and Normal Saline. The failure of pharmacists to effect solution of Chloretone has led physicians to add this legend to the prescription: "Shake the Chloretone with the water and filter.

Chloretone is soluble to 0.7 per cent in water. This is the only information appearing in the literature. Text books when dealing with the subject blandly direct "Dissolve the Chloretone in the water and add the other ingredients," or, "Dissolve in alcohol and add the other ingredients." Such information is misleading and insufficient. Chloretone cannot be put into solution quickly by any of the usual methods nor will dissolving it in an unspecified amount of alcohol help in the least.

Solution may be effected in several ways. The official solubility statement for Chloretone is correct but it must be remembered that solubility is very slow.

plicable to large quantities and may be used to prepare stock solutions.

1. The Chloretone is added to a pint of water

The first two of the following methods are ap-

\*Reprinted from Bulletin of the American College of Apothecaries 9:5, page 8, (December 1948).

and shaken for a few minutes every hour or so about 24 hours and it gradually goes into solution.

2. The second method involves heat and is quicker. The water is heated to about 60° C. and the solute added. The container must be shaken continuously while the temperature of the solution gradually drops to about 40° or 45° C. By this time the solute is in solution. Merely heating to effect melting of the solute and then allowing to cool results in precipitation of the Chloretone. The critical temperature for solubility seems to be

3. The third method requires alcohol and is applicable to small quantities where its use is not objectionable. If the Chloretone is dissolved in alcohol and the water added, precipitation results. At least 8 per cent alcohol is required to maintain solution if long continued shaking is neglected.

4. The fourth method is applicable to small extemporaneous quantities. The Chloretone should be finely powdered in a mortar, necessarily with just a drop of water and the Ephedrine Sulfate. It is then transferred to the container and shaken with the balance of the water for about one or two minutes and solution is effected.

Mixtures of chloretone in normal saline are stable if the amount of chloretone does not exceed 0.5 per cent. When Chloretone is in excess of 0.5 per cent, it is salted out by the sodium chloride and rises to the top of the solution.

# INTERNSHIPS in Hospital Pharmacy

Beginning with the March-April issue of THE BULLETIN, "Internships in Hospital Pharmacy" will be a regular section edited by Mr. James Inashima, senior intern pharmacist at Jefferson Medical College Hospital in Philadelphia. This section will include information of particular interest to interns in pharmacy and to those pharmacists who are contemplating the establishment of an internship program in their hospitals. The editor will be glad to receive comments which might be of interest in this column. Announcements of internship programs, names of pharmacists participating and papers of interest to interns and other hospital pharmacists should be sent to Mr. Inashima.

### INTERNS SEE HOSPITAL PHARMACY IN OPERATION

Graduate student-interns at the Philadelphia College of Pharmacy and Science have recently had the opportunity to see hospital pharmacy in operation in other outstanding hospitals in the East. They recently visited the sterile products laboratory of Episcopal Hospital and the pharmacy of Nazareth Hospital, both in Philadelphia. This is part of the graduate student training program under the course heading of "Hospital Pharmacy Survey," the purpose of which is to acquaint the students with the facilities in other hospitals. Those present were Mr. James Inashima, Miss Edith Bactowsky, Mr. Maxim Wise, Miss Mary Lane (in charge of the preparation of sterile products at Jefferson Medical College Hospital), and Mr. Herbert Flack, chief pharmacist at the hospital and lecturer on hospital pharmacy at the college.

On November 30, 1948, these same students visited the retail pharmacy and manufacturing plant of Hynson, Westcott, and Dunning in Baltimore with the purpose of reviewing the dispensing procedures in the retail pharmacy and the manufacture of tablets and sterile products in the manufacturing division.

While in Baltimore, the group also reviewed the operation of the pharmacy department of The Johns Hopkins Hospital, where Chief Pharmacist W. Arthur Purdum spent the afternoon explaining the many interesting and unique features of his large pharmacy department.

On December 5, 1948, Mr. James Inashima, senior pharmacy intern, began a two-week review of hospital pharmacy operations as part of the graduate training course. Mr. Inashima by spending two days at each institution reviewed sterile products preparation at Peter Bent Brigham Hospital, Boston, Mass., and pharmacy operation and administration at both Massachusetts General Hospital under supervision of Chief Pharmacist John Murphy, and at Grace-New Haven Hospital under Chief Pharmacist John Zugich. A full week was spent at The New York Hospital where Apothecary-in-Chief Donald A. Clarke, scheduled daily activities so that Mr. Inashima would obtain a complete picture of the operations in this department.

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For a six day period beginning January 31, 1949, two pharmacy interns exchanged their positions in hospitals. Miss Shirley M. Bennett, pharmacy intern at Grace-New Haven Hospital, and Miss Edith Bactowsky, pharmacy intern at Jefferson Medical College Hospital, exchanged living quarters and jobs for this six day period. Duty schedules at each pharmacy were so arranged that each intern had the opportunity to observe the complete departmental operation in the other hospital, and prepared a report of their findings.

#### JOHNS HOPKINS ANNOUNCES INTERNSHIP PROGRAM

The Johns Hopkins Hospital, in cooperation with the Graduate School and the School of Pharmacy of the University of Maryland, announces that internships in pharmacy will be open to a number of 1949 or other recent graduates of recognized schools of pharmacy. Appointments will be for a period of two years, beginning July 1, 1949. During this time, interns will devote one-half time to hospital pharmacy work and one-half time to graduate study. Upon satisfactory completion of the internship and the course of study, Master of Science degrees will be conferred by the University of Maryland and Certificates of Internship will be awarded by The Johns Hopkins Hospital.

An allowance of \$100 per month will be provided by the hospital, and the University of Maryland will make a reduction of 25% in tuition fees. Complete information regarding fees and curricula can be found in the catalog of the School of Pharmacy, copies of which may be secured by sending requests to the school at 32 South Greene Street, Baltimore 1, Maryland.

Interns will be required to rent rooms at the hospital. Meals may be purchased for a nominal sum in any of several hospital dining rooms.

Opportunity will be offered for well-rounded practical experience in hospital pharmacy administration, pharmaceutical manufacturing, dispensing, and in the preparation of sterile solutions and other sterile products. The facilities of the Welch Medical Library of The Johns Hopkins University and the library of the University of Maryland School of Pharmacy are available. Off duty hours must be so arranged that one pharmacist intern will be on call to take care of emergency orders when the hospital pharmacy is closed.

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Regulations regarding personal conduct and habits will be those established by the Director of the Hospital for interns on other hospital ser-

Applicants should submit a statement giving full details as to date and place of birth, citizenship, marital status, education, etc. together with a small, recent photograph. An official transcript of the applicant's college record is required. The applicant should ask the dean of his college to write to the Director giving his estimate of the applicant's personality and fitness.

Applications for appointment should be forwarded to Edwin L. Crosby, M.D., Director, The Johns Hopkins Hospital, Baltimore 5, Maryland not later than April 1, and appointments will be announced on or before May 15, 1949.

### MICHIGAN ANNOUNCES GRADUATE PROGRAM IN HOSPITAL PHARMACY

The University of Michigan announces a two year program for graduate study and internship in hospital pharmacy to be given cooperatively by the Graduate School, the College of Pharmacy and the Department of Pharmacy of the University Hospital. Interns will devote one-half time to graduate study and one-half time to hospital pharmacy training. Successful completion of the two year program will lead to the degree of Master of Science in pharmacy, to be awarded by the University, and a Certificate of Hospital Pharmacy Internship to be granted by the Hos-

pital. The 1949 program will begin with the opening of the fall semester, although the appointments will be made on or before September 1st.

During the training period an allowance of \$100.00 per month will be provided by the hospital. This allowance will be increased to \$200.00 during the summer months. Tuition fee for the course will be approximately \$50.00 per semester for Michigan residents and \$100.00 for non-residents.

The two year program will afford a well rounded training for the practice of pharmacy in hospitals. Included among the specialized graduate courses offered are: Hospital Pharmacy Administration and Policy, 3 hours; Preparation of Parenteral Fluids, 3 hours; Special Problems in Manufacturing Pharmacy, 2 hours; Seminar in Hospital Pharmacy, 4 hours (1 hour per semester). Students whose background in pharmacology is considered inadequate will be advised to take 5 hours of Medical School Pharmacology. Other courses will be elected after consultation between the student and adviser.

The training program in the hospital pharmacy will be so arranged as to provide a rotating internship, thus permitting the intern a thorough training in hospital pharmacy administration, dispensing, extemporaneous compounding, manufacturing in large as well as small quantities, the preparation of parenteral solutions, the preparation of laboratory reagents and other phases of hospital pharmacy practice. The intern will also study the inter-relationships between the Pharmacy and other departments of the hospital. The intern will be assigned to take care of certain emergency calls when the Pharmacy is closed.

Applicants for the program must possess an accredited Bachelor's Degree and should have essentially a "B" average. Application may be made by letter to Professor Charles H. Stocking, Acting Director, College of Pharmacy, University of Michigan, Ann Arbor. The applicant should submit an official transcript of his college record, a small, recent photograph, and a letter of recommendation from the dean of his college. Only a limited number of applicants can be accepted.

#### CORRECTION

The author's name was misspelled in the article entitled "Some Experimental Applications of Pharmaceutical Preservatives" by Bess Cabibbo and Leo F. Godley appearing in the May-June (1948) issue of THE BULLETIN.



## CURRENT LITERATURE-

#### AMERICAN PROFESSIONAL PHARMACIST

December, 1948 - "A Problem in Metric System." Discusses the trend toward the use of the metric system exclusively in medical practice and the need for the standardization of glassware and containers to meet the requirements of this tendency.

page 1128

"Hospital Pharmacy News" - A resume of the federal and state regulations concerning narcotics and barbiturates as appeared in a hospital pharmacy bulletin intended to be distributed to the medical staff.

page 1129

#### HOSPITAL MANAGEMENT

December, 1948 - "Radical Changes Advocated in Current Pharmacy Study." A description of the changes in educational requirements and professional preparation advocated by the recent pharmaceutical survey.

page 74

#### SOUTHERN HOSPITALS

December, 1948 - "The Patient and the Hospital Pharmacy" by Hyman Africk, Chief Pharmacist, Oak Ridge Hospital. Elaborates on the professional services and facilities of the hospital pharmacy essential toward providing better hospital care for the patient.

page 56

January, 1949 - "With the Hospital Pharmacist" Edited by Joe Vance. Comment on: the decline in price of ethyl alcohol; the use of folic acid in treatment of anemia; the mechanism of action of the sulfonamides and penicillin against bacteria.

page 53

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#### JOURNAL OF THE AMERICAN PHARMACEUTI-CAL ASSOCIATION (Pract. Pharm. Ed.)

December, 1948 - "Progress in Antihistamine Therapy" by William T. Strauss, M.D. History of the development of the antihistamines along with a review of the many compounds now available. Includes long list of references.

page 728

#### MODERN HOSPITAL

December, 1948 - "Structure-Activity Relationship" by C. C. Pfeiffer, M.D. An analysis of the relation of chemical structure of drugs to the pharmacological action.

page 88

January, 1949 - "Seven Steps Toward the Goal: Improving Hospital Pharmacy" by Everett W. Jones. An editorial, written by the technical adviser of the magazine, discussing, first, the immediate objectives for hospital pharmacists everywhere and, secondly, the possibilities of tremendous saving in drug costs possible by prudent standardization and control of medicinals.

page 90

January, 1949 - "Carbowax Compounds in Pharmacy" by C. P. McClelland and R. L. Bateman. A guide to the use of polyethylene glycols in pharmaceutical preparations. Properties, toxicity and applications are discussed and a bibliography is included as a guide to more detailed information.

page 30

"Aluminum Collapsible Tubes" by David F. Menard. Storage tests and cost comparisons show that many pharmaceuticals can be packaged economically and safely in aluminum tubes. A list of ointments which can safely be packaged in aluminum is given as well as a list of preparations which should not be packaged in aluminum tubes.

page 34



#### 1949 INSTITUTES SAN FRANCISCO AND CHICAGO

The American Hospital Association has announced that two institutes on hospital pharmacy will be held during 1949 to be again sponsored by the American Hospital Association, the American Pharmaceutical Association and the American Society of Hospital Pharmacists. The first institute will be held on the University of California campus in Berkeley June 27 to July 1. Working in cooperation with the California Hospital Pharmacists, President Purdum has arranged for an outstanding program and faculty. Applications and copies of the program will be sent to all A.S.H.P. members in the near future.

Plans are also being made for the second institute which will be held at the University of Chicago August 29 to September 2.

## 1949 CONVENTION IN JACKSONVILLE

Hospital pharmacists throughout the country will want to make plans now to attend the 1949 convention of the American Pharmaceutical Association being held in Jacksonville, Florida during the week of April 24. As an affiliated organization of the A.Ph.A., the American Society of Hospital Pharmacists will hold its annual meeting in conjunction with the convention. The A.S.H.P. meetings are scheduled for Monday and Tuesday with their House of Delegates meeting on Sunday night. During the later part of the week, the sections of the A.Ph.A. will meet and the regular meetings of the House of Delegates will be held.

Mrs. Anna D. Thiel, chief pharmacist at Jackson Memorial Hospital in Miami is serving as chairman of the Convention committee and an announcement in regard to the program will be made in the near future. Mr. Charles Barnett, chief pharmacist at St. Luke's Hospital in Jacksonville, is a member of the local committee.

Since the society's constitution and by-laws now provide for a House of Delegates, local affiliated

chapters will want to send their delegate to the A.S.H.P. annual meeting. Secretary Cathcart will contact local secretaries giving more details about the House of Delegates.

# DELEGATE TO A.PH.A. HOUSE OF DELEGATES

President W. Arthur Purdum has appointed Mr. Albert P. Lauve, chief pharmacist at The Mercy Hospital, New Orleans, Louisiana, as the official delegate of the A.S.H.P. to the A.Ph.A.'s House of Delegates meeting at the Jacksonville convention in April. Mr. Lauve is a charter member of the A.S.H.P. and has been active in Society activities since its organization.

Mr. Norman Baker, chief pharmacist at Norfolk General Hospital, Norfolk, Virginia, has been chosen as alternate.

#### ASSOCIATION OF WESTERN HOSPITALS

The annual convention of the Association of Western Hospitals will be held in San Francisco at the Civic Auditorium May 9 - 12, 1949. Papers to be presented before the Pharmacy Section are:

Succinates in Barbiturate Poisoning - Dr. John J. Eiler, College of Pharmacy, University of California, San Francisco.

Newer Analgesics - Dr. Edward Way, College of Medicine, University of California, San Francisco.

Committee on Therapeutic Agents in the Hospital - Dr. Charles Schwartz, Chief, Pharmacy Section, Veterans Administration Branch Office No. 12, San Francisco.

A dinner meeting of the Northern California Society of Hospital Pharmacists is planned during the convention.



Carl H. Hergert Ralph W. Englehardt

#### MENTAL HOSPITAL PHARMACISTS MEET

The Association of New York State Mental Hygiene Pharmacists held its mid-winter conference at the Rochester State Hospital, January 15 with Ralph W. Englehardt, senior pharmacist, as host. Dr. Kenneth K. Slaght, acting director of the Hospital, gave a welcoming address. Carl H. Hergert, senior pharmacist at Binghamton State Hospital and chairman of the group, presided at the afternoon session which was taken up with discussion of mutual problems.

# BILL TO AMEND HOSPITAL SURVEY AND CONSTRUCTION ACT INTRODUCED IN SENATE

Identical bills to amend the Hospital Survey and Construction Act have been introduced in both the Senate and the House of the 8lst Congress. As introduced, these bills would provide for the following:

- 1. Increase the amount of Federal aid from \$75,000,000 a year to \$150,000,000 a year.
- 2. Extend the time for the operation of the Act an additional five years or making a total of at least 8 years.
- 3. Place the Federal allotment for the individual hospital or health center project on the same variable need basis as the overall allotment to the particular State. Under the Act the individual project today receives 33 1/3 per cent of the cost from Federal funds. Under the amendment the 33 1/3 per cent would be increased in communi-

ties of low income and the Federal contribution to individual projects would vary between 33 1/3 per cent and 70 per cent. There would be no increase in the over-all allotment to the particular state. The provision in the amendment for the increase of Federal allocation to the individual State is the same as it was when the original act was passed by the Senate.

- 4. Provide \$1,200,000 in Federal funds for aid to States, political subdivisions, universities, hospitals, and other public and private nonprofit institutions or organizations for projects for the conduct of research, experiments, or demonstrations relating to the development, utilization, and coordination of hospital services, facilities, and resources.
- 5. Provide Federal funds to aid States in the administration of the state plan for hospitals and health centers.

#### GROVER BOWLES ACCEPTS NEW POSITION

Grover C. Bowles, formerly on the pharmacy staff at the University of Michigan Hospital, has accepted the position as chief pharmacist at Strong Memorial Hospital in Rochester, New York. Mr. Bowles has been active in society activities, having made contributions to THE BULLETIN and participated in the institutes on hospital pharmacy. He is a graduate of the University of Tennessee school of pharmacy after which he served in the hospital corps of the Navy and worked in hospital pharmacies at Duke University in Durham, N. C. and at North Carolina Baptist Hospital in Winston Salem.

# PURDUM PARTICIPATES IN INSTITUTE AT WESTERN RESERVE

Hospital pharmacy was represented by Dr. W. Arthur Purdum at the Western Reserve Pharmacy Institute in Cleveland, February 10 and 11. This two day institute, sponsored by the school of pharmacy alumni of Western Reserve University and pharmaceutical organizations of Greater Cleveland, heard speakers from all branches of the profession. Dr. Purdum is scheduled to speak on "Increased Efficiency and Fconomy in the Hospital Pharmacy" and to participate in a panel discussion on "The Over-All Picture of The Pharmaceutical Survey."

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Other speakers on the program include Dr. Ernest Little, president of the American Pharmaceutical Association; Dr. George D. Beal of the Mellon Institute of Industrial Research; Carson P. Frailey, executive vice president of the American Drug Manufacturers Association; E. L. Newcomb, executive vice president of the National Wholesale Druggists Association; Frank W. Moudry, chairman of the NARD executive committee; and others.

#### MORDELL TO U. S. PUBLIC HEALTH SERVICE

The Division of Hospitals, U.S. Public Health Service announces that J. Solon Mordell, formerly Chief Pharmacist at the Syracuse University Hospital and recently Assistant Director of the Pharmaceutical Survey, has been commissioned as Pharmacist Officer in the Regular Corps of the U.S. Public Health Service. Mr. Mordell will serve as Chief of the Pharmacy Service at the Public Health Service Dispensary in Washington, D.C.

Mr. Mordell has had a wide and varied experience in pharmaceutical practice and in several governmental programs dealing with the profession of pharmacy. He graduated from Rutgers University, College of Pharmacy in 1929. In 1934, he received the Bachelor of Science degree from the College of the City of New York. Mr. Mordell obtained his initial practical training and experience in pharmacy under the aegis of Dr. J. Leon Lascoff with whom he was associated for almost three years, both as staff pharmacist and as personal assistant. On the recommendation of Dr. Lascoff, he was appointed Chief Pharmacist at the Syracuse University Hospital in 1932 where he served for almost 10 years and participated in the reorganization of the hospital's system of drug therapy. From March 1942 until August 1945, Mr. Mordell was Chief of the Drugs and Chemicals Section, Office of Civilian Requirements, War Production Board. During that period, he served for two months in the initial program of civilian distribution of penicillin through hospital depots. Following World War II, he served a year with the U.S. Public Health Service as Chief of the Drugs and Chemicals Unit in the Office of Surplus Property Utilization. From August 1946 to August 1948, he was Assistant Director of the Pharmaceutical Survey under the directorship of Dr. Edward C. Elliott.

Mr. Mordell is a life member of the American Pharmaceutical Association and is now Treasurer of its City of Washington Branch. At one time,

he was Chairman of the Association's Hospital Pharmacy Section, the nucleus around which the present American Society of Hospital Pharmacists was formed. Mr. Mordell served on the committee which framed the constitution of the Society and is one of its charter members. He is the author of numerous published papers concerning pharmacy practice in hospitals. A scientific exhibit dealing with rational drug therapy in hospitals, in the development of which he collaborated, won an Honorable Mention award at an annual convention of the American Medical Association, Mr. Mordell has served also as Secretary to the Pharmacy Section of the American Hospital Association and is a member of the Subcommittee on External Preparations, Committee on Revision of the "National Formulary."

# HENRY W. BEARD LT. COMMANDER IN NAVAL RESERVE

Mr. Henry W. Beard, secretary of the Northern California Society of Hospital Pharmacists and president of the pharmacy section of the Association of Western Hospitals has been promoted from chief petty officer to lieutenant commander in the U. S. Naval Reserve Medical Service Corps. Mr. Beard is a former chief hospital corpsman who helped establish the first base hospital in the Solomon Islands and served there during most of the war.

He is a civilian chief pharmacist for the Veterans Administration, Oakland, and plans to become a pharmacist at the University of California Hospital next month.

#### DEATH

Mr. Julian Wells, chief pharmacist at the University of California Hospital in San Francisco, died recently. Mr. Wells was an active member of both the American Pharmaceutical Association and the American Society of Hospital Pharmacists, and was president of the Northern California Society of Hospital Pharmacists. He was chairman of the A.S.H.P. Convention Committee at the time of the San Francisco meeting in 1948 and did much toward making the meeting a success. He was also instrumental in making plans for the institute which is to be held on the University of California campus in June.



#### AKRON AREA SOCIETY

THE AKRON AREA SOCIETY OF HOSPITAL PHARMACISTS met at the Massillon City Hospital at 8 P.M. on January II. During the business session the Proposed Minimum Standards for Pharmacies in Hospitals were reviewed and discussed.

The Cleveland Society has accepted the invitation to join the Akron Area Society at the April meeting.

#### NORTHERN CALIFORNIA CHAPTER

Meeting at the Marine General Hospital in San Francisco on December 14, THE NORTHERN CALIFORNIA SOCIETY OF HOSPITAL PHARMACISTS elected officers for 1949 with the following results: President Jerome M. Yalon, University of California Hospital, San Francisco: Vice-President J. A. Weiss, Permanente Hospital, Oakland; Secretary H. W. Beard, V. A. Office, Oakland; and Treasurer Francis R. Spinelli, Southern Pacific Hospital, San Francisco.

Announcement was made that the Northern California chapter has been accepted as an affiliated chapter of the American Society of Hospital Pharmacists according to a recent communication from Dr. W. Arthur Purdum, president.

The January meeting of the Northern California chapter was held on January 11 at Permanente Hospital in Oakland. The program consisted of installation of officers and a discussion of Duodenal Extracts led by Dr. Goetzl of Permanente Research Foundation.

#### GREATER NEW YORK CHAPTER

The November meeting of the GREATER NEW YORK CHAPTER OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS was held at St. Vincent Hospital on Wednesday, the 17th, beginning at 2:30 P.M. A representative of Eppenbach, Inc., was present to give a demonstration on the operation of the Eppenbach Colloid Mill. Suitable

premixes including Calamine Lotion and Boric Acid and Zinc Oxide Ointments were processed through the colloid mill. On discussing the use of the colloid mill, Mr. Gould emphasized the proper operation of the mill with certain precautions which must be followed to avoid mishandling and damage. The resulting appearance of the lotion and ointments demonstrated the usefulness of a colloid mill which achieves uniformity in the final product with economy of the pharmacist's time and energy.

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Sister Nicodema reported briefly on recent trends in the use of Dihydrostreptomycin. Suggestions for the program for future meetings included discussions on pricing, legal aspects of pharmacy and consideration of the proposed minimum standards for hospital pharmacies.

#### ILLINOIS CHAPTER

Meeting at the Chicago Hospital Council on January 11, THE ILLINOIS CHAPTER OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS heard Dr. George K. Fenn speak on "The Xanthines in Coronary Diseases." Dr. Fenn is president of the Chicago Heart Association and an authority on coronary diseases.

#### MICHIGAN CHAPTER

THE MICHIGAN CHAPTER OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS met at the Detroit Leland Hotel on December 9 with the McKesson and Robbins Company as host. "Preparations Designed for Athlete's Foot" was the title of the talk given by Dr. Kurt Oster, Director of Pharmacology of McKesson's Manufacturing Division in Bridgeport, Connecticut.

#### NEW JERSEY SOCIETY

Installation of officers for 1949 took place at the January meeting of THE NEW JERSEY SOCIE-TY OF HOSPITAL PHARMACISTS. Meeting at the Rutgers University College of Pharmacy in Newark, the newly elected officers were installed by Mrs. Anna Richards, retiring president. The new officers are President Herbert B. Falk, Barnert Memorial Hospital, Paterson; Vice-President Mrs. Anna Richards, Mountainside Hospital, Montclair; Secretary Eve Weiss, Lutheran Hospital, Newark; and Treasurer Bertram F. Jones, Essex County Hospital, Cedar Grove.

#### D. C. CHAPTER

The December meeting of the DISTRICT OF COLUMBIA CHAPTER OF THE AMERICAN SO-CIETY OF HOSPITAL PHARMACISTS was held at the Mt. Alto Veterans Hospital in Washington. After greetings by Dr. T. J. Pekin, chief medical officer of the Mt. Alto Hospital, President E. Burns Geiger turned the meeting over to Mr. Eddie Wolfe. Dr. Robert Stolar, consultant in dermatology for the Veterans Administration, the U.S. Army, and the D. C. Health Department, was introduced by Mr. Wolfe and presented a talk on "The Most Recent Advances in Dermatologic Preparations."

A motion picture was presented by the American Hospital Supply Corporation on "Intravenous Solutions, Blood and Blood Plasma" and Mr. G. Blomquist, special hospital representative for the corporation spoke on "Recent Advances in the Field of Intravenous Solutions." Following the program, those present were invited to visit the Mt. Alto hospital pharmacy where Mr. Eddie Wolfe is chief pharmacist.

#### PHILADELPHIA ASSOCIATION

Mr. Don E. Gillung, Chief, Division of Narcotic Drug Control, Commonwealth of Pennsylvania, was the speaker at the January meeting of the PHILADELPHIA HOSPITAL PHARMACISTS' ASSOCIATION held at the Jefferson Medical College Hospital. Mr. Gillung's subject was "Narcotics and Barbiturates--Responsibility of the Physician-Nurse-Pharmacist Team in Maintaining Control." Physicians, nurses, members of the Philadelphia Branch of the American Pharmaceutical Association and other pharmaceutical organizations in the Philadelphia area were invited to participate in this meeting.

#### ASSOCIATION OF GREATER ST. LOUIS

Eighteen members were present at the January meeting of the HOSPITAL PHARMACISTS ASSO-CIATION OF GREATER ST. LOUIS at which time the Ciba Pharmaceutical Company was host to the group. Three members were accepted as new members and announcements concerning future meetings were made. There was also some discussion of the Proposed Minimum Standards for Pharmacies in Hospitals as published in the September-October (1948) issue of THE BULLETIN.

#### FLORIDA ASSOCIATION

THE FLORIDA HOSPITAL PHARMACISTS' ASSOCIATION, meeting in Jacksonville on December 1, elected Charles B. Barnett, pharmacist at St.



D. C. Chapter of the A.S.H.P. Meeting December 15



Luke's Hospital, Jacksonville as president. Other officers elected for the ensuing year were Mrs. Anna D. Thiel, Jackson Memorial Hospital, Miami vice-president; and Mrs. Margaret Trippett, Orange Memorial Hospital, Orlando, secretary-treasurer.

#### LOUISIANA SOCIETY

Recently elected officers of the LOUISIANA SOCIETY OF HOSPITAL PHARMACISTS are: President Valerie Armbruster, Charity Hospital; Vice-President Troy Carter, V. A. Hospital Secretary Alice Anna Poirrier, Touro Infirmary; and Treasurer Albert P. Lauve, Mercy Hospital, all of New Orleans.

#### MASSACHUSETTS SOCIETY

"Certain Techniques Useful in Virus Research" was the subject of a talk given by Dr. Thomas Weller at the January meeting of the MASSACHUSETTS SOCIETY OF HOSPITAL PHARMACISTS held at Children's Hospital in Boston.

During the meeting the following new officers were elected: Chairman Joseph A. Shibel, Lawrence General Hospital, Lawrence; Vice-Chairman William E. Dudley, U. S. Marine Hospital, Brighton 35, Boston; Secretary Judith Hall, N. E. Baptist Hospital, Boston; and Treasurer Sister Mary Edward, St. Vincent Hospital, Worcester.

The Massachusetts Society also announced that Mr. George Archambault has been made an Honorary Member of the local chapter. Mr. Archambault, who is now Director of the Pharmacy Section, Hospital Division of the U. S. Public Health Service, did much toward organizing the Massachusetts Society of Hospital Pharmacists and was one of its charter members.

## MIDWEST SISTER PHARMACISTS

THE MIDWEST ASSOCIATION OF SISTER PHARMACISTS held its last meeting for 1948 at the University of Illinois College of Pharmacy with Dean Earl R. Serles as guest speaker. Following the meeting, the Sisters enjoyed a tour of the College and the hospital pharmacy including the manufacturing laboratory.

Officers of the Midwest Association of Sister Pharmacists for 1948-1949 are: President Sister Mary Hortensis, St. Elizabeth Hospital; Vice-President Sister Mary Ann Gallagher, H.S.J., St. George Hospital; Recording Secretary Sister Mary Tarcisia, O.S.F., St. Joseph's Home for the Aged; Corresponding Secretary Sister Mary Leonica,

H.F.N., St. Mary's Hospital; and Treasurer Sister Mary Wilhelmina, H.F.N., St. Mary's Hospital.

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# SOUTHERN CALIFORNIA CHAPTER

Retiring officers of the SOUTHERN CALIFOR-NIA CHAPTER OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS are pictured at a recent meeting. They are: (left to right) Vicepresident Charles Towne, Veterans Administration; President Sister Mary Junilla, O.S.F., Queen of Angels Hospital; Secretary Vesta Burns, Children's Hospital; and Treasurer Walter Hitzelberger, Los Angeles General Hospital.

# POSITIONS IN

# HOSPITAL PHARMACY

WEST VIRGINIA... Position open at The Myers Clinic, a 70 bed hospital in Philippi, West Virginia. Pleasant working conditions with working hours 9:00 to 5:30. For additional information write to Dr. Karl J. Myers, The Myers Clinic, Philippi, West Virginia.

NORTH CAROLINA ... Immediate opening for well qualified chief pharmacist at James Walker Memorial Hospital, Wilmington, North Carolina. 350-bed hospital. For further information, write to John W. Rankin, Director.

Ohio . . . Wanted - Registered or qualified hospital pharmacist. Female preferred. Full charge of 140-bed hospital pharmacy. Salary open. If interested contact St. Joseph's Riverside Hospital, 1400 North Tod Ave., Warren, Ohio



# -NEW MEMBERS.

OCTOBER 1, 1948 - FEBRUARY 1, 1949

#### ALABAMA

T

Capehart, Robert L., U.S. Marine Hospital, Mobile 16,

### CALIFORNIA

Edwards, Josephine Rawie, 640 - 22nd St., Oakland 12, Fung, Rita M., 16 John St., San Francisco, Robinson, James, 13332 McKinley, Los Angeles,

#### COLORADO

Kohan, Samuel, 1364 St. Paul, Denver 6, Sister Mary Mark Swift, 1905 E. Third Ave., Durango,

#### CONNECTICUT

Petrillo, Jennie Ann, 76 Haynes St., Manchester, Sister Maria Lucia, 1450 Chapel, New Haven,

#### DISTRICT OF COLUMBIA

Hilts, Clayton E., Rm. 2D201, Pentagon,

#### GEORGIA

Coffield, Mrs. Martha B., St. Joseph Infirmary, Atlanta, Haupt, Charles S., V.A. Branch Office, Atlanta 3, Magalian, Paul, V.A. P. O. #5, Pharmacy Division, Atlanta 3,

#### ILLINOIS

Grant, Mary Janet, 1112 Brummel, Evanston,
Kravitz, Arnold, 4324 W. 16th St., Chicago,
Myers, E. Gordon, 10135 S. Paxton, Chicago,
Perlman, Joseph, 1441 Lunt Ave., Chicago,
Peters, Chester, 926 Judson, Evanston,
Ritzlin, Philip, 3932 Wilcox, Chicago 24,
Mother Bonaventure Bertocchi, 2548 Lake View Ave., Chicago,
Wallace, Robert T., 1008 Fayette, Springfield,
Wittenberg, Vera T., 5925 Racine Ave., Chicago 36,

#### KENTUCKY

Foley, Eileen, Good Samaritan Hospital, Lexington, Lohr, Joel D., Nichols V.A. Hospital, Louisville,

#### LOUISIANA

Berkowitz, Morris E., 210 State, New Orleans Hecker, Florence Ann, 8815 Pritchard, New Orleans

## MARYLAND

Gregorek, Frank J., 2006 F. Lombard St., Baltimore 31, Kapusta, Dolores A., Johns Hopkins Hospital, Baltimore 5, Moscati, Marius A., 455 Langley Road, Baltimore 21,

# MASSACHUSETTS

Danialian, Leo, 94 Cross Street, Methuen, Zager, George R., 9 Maplewood Ave., Gloucester,

#### MICHIGAN

Fiorille, Joseph, 208 N. Division, Ann Arbor,

#### MISSOURI

Branard, Ethyl, 2940 Forest, Kansas City, Schaefer, Kenneth H., 3627 Paule Ave., St. Louis 23, Sister Mary Octavia Bertram, 505 Bolivar, Jefferson City, Sister Regina Marie Pingel, 6420 Clayton Road, St. Louis 17,

# MONTANA

Pitts, Betty Louise Miller, 426 - 6th Ave. N., Great Falls,

#### NEBRASKA

Hagel, Mrs. Bette, 1029 Park Ave., #113, Omaha, Sprague, Charles Henry, Creighton Univ., Omaha,

#### **NEW JERSEY**

Falk, Herbert B., 625 E. 27th St., Paterson 4, Gakenheimer, Walter C., Merck & Co., Inc., Rahway, Klein, Franz, 784 High St., Newark 2, Ulan, Martin S., Rutgers Univ., Newark,

#### **NEW YORK**

Altbach, Hyman, 1854 Hendrickson St., Brooklyn Cole, Lorene J., 277 Troup St., Rochester, Rubens, Harry M., 81 S. Fitzhugh, Rochester, Sister M. Andrew O.P., 1298 St. Marks Ave., Brooklyn,

#### NORTH CAROLINA

Collier, Halcyone B., 59 Henrietta St., Asheville, Nelson, Christine Sophie, 901 East 7 St., Winston-Salem,

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Collier, Dorothy E., 7405 Quincy Ave., Cleveland, Koresmar, Urban J., 4160 W. 227th, Fairview, Kostyk, Stephan M., 6495 Westminster Drive, Parma 9, Rugo, Mr. Louis, 22 N. Medina Ave., Youngstown, Trevis, Mrs. Margaret Nemec, 7207 Ivy Ave., Cleveland 4, Trotter, James M., 412 E. Mulberry St., Lancaster,

#### PENNSYLVANIA

Boonin, Albert Edward, 5971 Chester Ave., Philadelphia, Manzelli, Thomas A., 319 N. 63rd St., Philadelphia, Sirhal, Michael Morris, 136 Starr, Phoenixville, Sister M. Francino Hensler, St. Francis Hospital, Pittsburgh,

## SOUTH DAKOTA

Sister Mary Grace Kujawa, St. John's Hospital, Huron,

#### TENNESSEE

Pfau, Lowell Robert, 2262 Central Ave., Memphis, Sykes, Joe R., 2752 Natchez Lane, Memphis,

#### TEXAS

Boenigk, John W., Univ. of Texas, Austin, Campbell, Ruth B., 713 Ave. C., Galveston, Hodnett, Hill J., 2401 Hillside Drive, Dallas, McClure, John W., 3620 Samuell, Dallas, Sister Mary Lucille Desmond, 1910 Crawford, Houston 3, Westerburg, George F., 2709 Colcord, Waco,

#### VIRGINIA

Dodge, Arnold H., 5318 - 8th Road, So., Apt. A95, Arlington, Jones, Carl L., 903 S. Oak St., Arlington,

#### WASHINGTON

Sister Remi, S. 1009 Mill, Colfax, Takano, Frank N., 1209 Yesler Way, Seattle,

#### WISCONSIN

Sister Agnella O.S.F., 940 Webster Ave., Greenbay,

#### CANADA

Maday, Wolodomyr William, 11418 - 97th St., Edmonton, Alberta, Moore, Ivan Milton, 1025 Southgate, Victoria, B. C., Nadeau, Herve, 100 W. St. Paul, Montreal, Olynyk, Irene Olga, 757 Bathurst St., Toronto, Ont.,

# SCOPE of the

# **Hospital Survey and Construction Act**

The scope of new hospital construction in progress under the Hospital Survey and Construction Act can best be appreciated by referring to the list of new general hospitals which have been approved to date appearing on page 43 of this issue of THE BULLETIN.

By October 29, 1948, a total of 540 project applications had been approved by the Surgeon General. The estimated total cost of the projects amounted to more than \$301,000,000, of which the Federal share was nearly \$92,000,000. Of the 540 approved applications, 416 were for new general hospitals or for additions, alterations, or replacements in existing general hospital facilities. The remaining applications were divided as follows: 27 mental hospitals; 16 tuberculosis hospitals; 9 chronic disease hospitals; 66 for health centers; 3 for nurses' homes; and 3 for health department laboratories.

Four-fifths (327) of the general hospitals were for new facilities. A distribution of these new facilities by size of hospital shows 190 with less than 50 beds, 92 with 50 to 100 beds, and 45 with 100 beds or more.

It will be noted that for the present many are small and in rural areas, although the ratio of hospitals by bed size approximates the ratio of existing facilities. We also know that in all of the existing general hospitals only 38% have pharmacies; this incidence drops to 28.7% in the 50-99 bed size

Therein lies the challenge--the problem indicates a need for education in hospitals if the full benefits of the profession of pharmacy are to be made available as necessary to the development of a higher standard of patient care.

Previous editorials in THE BULLETIN have emphasized our responsibility and outlined the manner in which we can assist these communities in planning the pharmacy service in their hospitals. It will be the affiliated chapters of the society which are in a better position than any one agency to work closely with the State Agencies. The responsible officials of the affiliated chapters should appoint working committees which will accept the responsibility, then proceed to offer the individual State Agency handling the Hospital Survey and Construction Act the assistance of the chapter and local pharmacists in planning and advising on the pharmacies for the hospitals which are being planned in the State. The State Agency in turn can advise their communities and architects that such a service is available. For a list of State AgenWhat can local hospital pharmacists do in order that adequate pharmaceutical service will be provided in the 327 new general hospitals which are being constructed under the Hospital Survey and Construction Act?

cies designated to administer the Hospital Survey and Construction program, you may wish to consult the July-August (1948) issue of THE BULLE-TIN, page 154.

The State Hospital Associations should also be advised of this available service since many are forming working committees of their own to render consultation to future members and our efforts can complement theirs.

Obviously this program may demand consider able effort on the part of each member of the Society, it will not be simple nor is there a composite approach to all problems; however, the local hospital pharmacist has the advantage of knowing the needs, resources and possibly the membership of the Building Committee or can readily ascertain them. A recent article "Programming, Planning and Construction of a Hospital" by the Hospital Facilities Division, Public Health Service furnishes good background information on some of the responsibilities of the building committee or hospital board, it also points out that types of service and requirements of each department are decided at the earliest stages of planning. Changes are not recommended after the award of the construction contract.

Reprints of all guide material issued by the U.S. Public Health Service, several of which have been reviewed in THE BULLETIN (January-February 1948), are available from the various State Agencies. What about the very small hospitals which do not find it feasible to employ even a part time pharmacist? They could benefit from the professional guidance and cooperation of the local retail pharmacist.

The recently enacted State Hospital Licensure Laws may require certain procedures in handling pharmaceuticals which may be new to the personnel of these small hospitals. A periodic visit and the tactful assistance of the local pharmacist can anticipate these problems more easily and at the same time contribute to a higher standard of patient care in his own community.

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# AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

# HOSPITAL SURVEY AND CONSTRUCTION ACT

THE FOLLOWING LIST INCLUDES NEW GENERAL HOSPITALS FOR WHICH INITIAL CONSTRUCTION APPLICATIONS HAVE BEEN APPROVED BY THE UNITED STATES PUBLIC HEALTH SERVICE--THROUGH OCTOBER 29, 1948.

PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE	PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE
ALABAMA				Trinity County Hospital			
Holy Family Hospital Ensley, Pop. ?	48	\$ 450,000	\$ 150,000	Weaverville, Pop. 1,200	20	\$ 311,000	\$ 103,666
St. Jude Hospital Montgomery, Pop. 78,084	152	1,327,360	437,453	Corcoran Municipal Hospital Corcoran, Pop. 2,092	(Equip. o	only) 45,000	15,000
Providence Hospital Mobile, Pop. 78,720	200	2,100,000	100,000 300,000	COLORADO			
			300,000	The Memorial Hospital Craig, Pop. 2,123	25	301,000	100,333
Mobile Infirmary Mobile, Pop. 78,720	250	3,076,312	300,000 700,000	St. Mary's Hospital Grand Junction, Pop. 12,479	132	1,812,000	100,000 200,000 200,000
Martin DePorres Hospital Mobile, Pop. 78,720	30	325,000	100,000	Washington County Public Hosp. Akron, Pop. 1,417	20	199,670	66,223
Mizell Memorial Hospital Opp, Pop. 3,178	29 -	462,432	150,807	Montrose County Public Hospital Montrose, Pop. 4,764	40	354,500	117,426
Chattahoochee Valley Hospital Langdale, Pop. 1,800	0.9	1,994,787	663,133	Delta Memorial Hospital Delta, Pop. 3,717	16	132,100	43,333
Languate, Pop. 1,000	82	1,994,101	603,133	Fort Morgan Community Hosp. Fort Morgan, Pop. 4,884	50	488,000	161,666
ARKANSAS				Weld County Hosp, and Public Health Center Greeley, Pop. 15,995	218	2,191,736	250,000
Drew County Hospital Monticello, Pop. 3,650	60	445,704	146,336				
Hot Springs County Memorial Hosp. Malvern, Pop. 5,290	40	299,459	99,570	CONNECTICUT  New Milford Hospital  New Milford, Pop. 3,000	40	600,000	200,000
Clark County Hospital Arkadelphia, Pop. 5,078	30	294,922	94,922	FLORIDA	10	000,000	200,000
Crittenden County Hospital West Memphis, Pop. 3,369	90	1,157,233	379,078	Gadsden County Hospital Quincy, Pop. 3,888	60	610,000	200,000
Polk County Memorial Hosp. Mena, Pop. 3,510	30	310,000	100,000	Bay County Hospital Panama City, Pop. 11,610	58	613,633	194,593
Crossett Health Foundation Crossett, Pop. ?	52	674,347	224,782	Suwanee County Hospital Live Oak, Pop. 3,427	36	296,186	89,667
Boone County Hospital Harrison, Pop. 4,238	40	450,000	150,000	Walton County Hospital De Funiak Springs, Pop. 2,570	30	268,459	68,466
Washington County Mem. Hosp. Fayetteville, Pop. 8,212	49	450,000	150,000	Tallahassee Memorial Hospital Tallahassee, Pop. 16,240	150	1,981,120	388,949
Rogers Memorial Hospital Rogers, Pop. 3,550	25	240,275	80,092	GEORGIA			
Community Hospital Paragould, Pop. 7,079	66	217,104	72,035	Griffin-Spalding County Hospital Griffin, Pop. 13,222	100	1,200,000	400,000
CALIFORNIA				Kennestone Hospital Marietta, Pop. 8,667	103	1,155,000	385,000
Pioneers Memorial Hospital Brawley, Pop. 11,718	100	1,564,329	492,443	Carrollton General Hospital Carrollton, Pop. 284	40	375,000	125,000
Tracy Community Mem. Hosp. Tracy, Pop. 4,056	42	235,002	78,334	Minnie G. Boswell Greensboro, Pop. 59,319	28	390,000	130,000
Northern Inyo Hospital Bishop, Pop. 1,490	30	438,401	143,717	Upson County Hospital Thomaston, Pop. 6,396	100	1,086,000	362,000
Modoc General Hospital Alturas, Pop. 2,090	54	1,041,955	346,901	Hall County Memorial Hosp. Gainesville, Pop. 10,243	113	1,461,640	479,666
Paso Robles War Memorial Hosp. Paso Robles, Pop. 3,045	24	600,000	200,000	Mitchell County Hospital Camilla, Pop. 2,588	32	249,000	83,000
Patterson Hospital Patterson, Pop. 1,109	25	386,700	128,900	Elbert County Hospital Elberton, Pop. 6,188	50	525,000	175,000
Alta Hospital Dinuba, Pop. 3,790	50	780,000	255,966	St. Francis Hospital Columbus, Pop. 53,280	154	1,899,933	633,311

# THE BULLETIN

Code Memorial Hospital Royala, Psp. 1,148   25 \$ 294,700 \$ 98,233   Salarington County Mem'l. Hosp. 1, 169   141,211   Psp. 1,169   P	PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE	PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE
Sylventer, Pop. 2,191   29   284,801   94,903   Knox, Pop. 2,166   35   312,783   103,91		25	\$ 294,700	\$ 98,233	Washington County Mem'l. Hosp. Salem, Pop. 3,194	40	\$ 428,000	\$ 141,333
Richand, Pop. 1,497	Worth County Hospital Sylvester, Pop. 2,191	29	284,981	94,993		35	312,783	103,594
Caldwell Memorfal Hospital   75		24	212,000	70,666		50	616,000	200,000
Califfeel, Pop. 7,273   75 799,170   139,751   Columbia City, Pop. 4,219   57   554,840   132,111   Blacktoot, Pop. 3,861   35   556,400   118,333   Perry County Hospital   50   500,000   165,860   Machine, Pop. 2,240   40   500,000   165,860   Machine, Pop. 2,240   40   500,000   165,860   Machine, Pop. 2,439   40   500,000   165,860   Machine, Pop. 2,439   40   500,000   205,800   Machine, Pop. 2,439   40   500,000   205,800   Machine, Pop. 2,439   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   500,000   40   40   40   40   40   40   4	IDAHO					38	442,500	142,500
Blacktook, Pop. 3,681   35   536,400   118,333   Cammelton, Pop. 2,2406   40   500,000   168,600   Wester, Pop. 3,683   30   378,000   118,400   Tipton, County Hospital   52   624,000   266,600   Estele Memorial Hospital   Salmon, Pop. 2,439   35   311,000   100,000   Adair County Memorial Hospital   Paris, Pop. 932   35   311,000   100,000   Adair County Memorial Hospital   48   508,425   189,471   Algora, Pop. 4,968   48   508,425   189,471   Algora, Pop. 4,968   48   508,425   189,471   Algora, Pop. 4,972   42   235,200   77,300   Algora, Pop. 4,972   42   235,200   142,600   Algora, Pop. 4,972   42   42   42,000   142,600   Algora, Pop. 4,972   42   42   42,500   142,600   Algora, Pop. 4,972   42   42   42,000   142,600   Algora, Pop. 4,972   42   42   42,000   142,600   Algora, Pop. 4,972   42   42   42,000   142,600   Algora, Pop. 4,973   42		75	799,170	139,751		57	554,840	182,113
Weiser, Pop. 5,665   30 373,000   118,400   Tipton, Pop. 5,101   52 624,000   205,000   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100		35	536,400	118,333		40	500,000	166,000
Stalmon, Pop. 2,458   28   225,875   75,000   IOW A   Adair County Men'l. Hosp.   Adair Men'l. Hos	Memorial Hospital	30				52	624,000	206,000
Bear Lake County Hospital   35   311,000   100,000   Adair County Mem'l. Hosp.   1,609   32   340,535   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161   111,161	Steele Memorial Hospital							,
ILLINOIS	Bear Lake County Hospital				Adair County Mem'l. Hosp.	32	340 535	111 146
Passavant Memorial Hospital   140   2,100,000   700,000   Watkon, Pop. 2,475   24   235,200   77,800   77,800   77,800   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700,000   700		30	311,000	100,000	St. Joseph Mercy Hospital			
Carmi Hospital Carmi, Pop. 4,098 50 875,000 291,666 Winderset, Pop. 3,691 50 875,800 291,933 Marchester, Pop. 3,682 51 842,040 113,01 Carliaville, Pop. 4,965 50 875,800 291,933 Marchester, Pop. 3,762 51 342,043 113,01 Massac County Hospital Mt. Carmel, Pop. 6,987 50 774,800 249,933 Maculesta, Pop. 4,076 Massac County Hospital Mt. Carmel, Pop. 6,987 54 742,500 247,500 Bloometer, Pop. 4,076 St. Clements Hospital Red Bud, Pop. 1,302 64 1,059,633 226,341 Mt. Vernon, Pop. 14,124 100 1,164,000 388,000 KANSA Mt. Vernon, Pop. 14,124 100 1,003,000 333,333 St. Joseph Memorial Hospital Mt. Vernon, Pop. 14,124 100 1,003,000 333,333 St. Joseph Memorial Hospital Pairfield Memorial Hospital Pairfield, Pop. 4,082 Mercer County Hospital Alado, Pop. 2,593 Anna City Hospital Anna, Pop. 4,082 50 880,100 221,166 Cifeyville Mnincipal Hosp. Anna City Hospital Anna, Pop. 4,082 Lawrence County Hospital Anna, Pop. 4,082 Lawrence County Hospital Carliaville, Pop. 6,213 50 855,803 283,267 Pratt, Pop. 5,914 100 100,000 Pratt, Pop. 1,735 Memorial Hospital Carliaville Mnincipal Hospital Carliaville	Passavant Memorial Hospital				Veterans' Memorial Hospital			
Carlinville General Hospital Carlinville, Pop. 4,065  September 15,000 291,933 Delaware County Mem'l. Hosp. Manchester, Pop. 3,762 35 342,043 113,011 Manchester, Pop. 6,9687  Mabash County Hospital Mt. Carmel, Pop. 6,087  Massac County Hospital Mt. Carmel, Pop. 6,087  St. Clements Hospital Delaware County Hospital Bloomfield, Pop. 2,732 34 473,000 156,164 Massac County Hospital Bloomfield, Pop. 2,732 34 473,000 156,164 Massac County Hospital Red Bud, Pop. 1,302  God Samaritan Hospital Mt. Vernon, Pop. 14,724 100 1,164,000 388,000 KA NS AS  Fairfield Memorial Hospital Pairfield Memorial Hospital Pairfield, Pop. 4,068 38 482,539 160,848  Marcer County Hospital Aledo, Pop. 2,589 48 588,663 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,000 154,655 170,00		140	2,100,000	700,000	Madison County Memorial Hosp.			
Carlinville, Pop. 4,965         50         875,800         291,933         Manchester, Pop. 3,762         35         342,043         113,01           Wabash County Hospitial Mt. Carmel, Pop. 6,987         50         774,800         249,933         Jackson County Public Hosp. Maguoketa, Pop. 4,076         38         482,539         160,846           Massac County Hospitial Petropoils, Pop. 6,287         54         742,500         247,500         Davis County Hospitial Bloomfield, Pop. 2,732         34         473,000         156,168           St. Clements Hospital Red Bud, Pop. 1,302         64         1,059,633         226,341         Van Buren County Mem'l. Hosp.         20         262,583         87,57           Good Samaritan Hospital Mt. Vernon, Pop. 14,774         100         1,64,000         388,000         K ANS AS         K ANS AS           Pairfield Memorial Hospital Fairfield, Pop. 4,008         50         787,682         262,560         St. Margaret's Mercy Hosp.         43         588,663         170,00           Mercer County Hospital Anna, Pop. 4,092         50         680,100         221,166         Coffeyville Municipal Hosp.         34         562,500         181,500           Lawrence County Hospital Lawrence County Hospital Carriage, Pop. 2,173         50         685,803         283,267         Pratt County Hospital         34		50	875,000	291,666		39	432,900	142,800
Micror County Hospital Fairfield, Pop. 4,076	Carlinville, Pop. 4,965	50	875,800	291,933	Manchester, Pop. 3,762	35	342,043	113,031
Petropolis, Pop. 6,287   54 742,500 247,500   Bloomfield, Pop. 2,732   34 473,000   156,168	Mt. Carmel, Pop. 6,987	50	774,800	249,933	Maquoketa, Pop. 4,076	38	482,539	160,846
Red Bad, Pop. 1,302         64         1,059,633         226,341         Keosauqua, Pop. 1,040         20         262,583         87,527           Good Samaritan Hospital Mt. Vernon, Pop. 14,7724         100         1,164,000         388,000         KANSAS         KANSAS           Fairfield Memorial Hospital Fairfield, Pop. 4,008         10         1,003,000         333,333         St. Joseph Memorial Hospital Larned, Pop. 3,533         43         588,663         170,000           Mercer County Hospital Alado, Pop. 2,593         50         787,682         262,560         Fredonia, Pop. 3,524         12         464,000         154,667           Anna City Hospital Anna, Pop. 4,092         50         680,100         221,166         Coffeyville Pop. 17,355         74         562,500         187,500           Lawrence County Hospital Carrenceville, Pop. 6,213         50         617,000         200,000         Norton County Hospital Norton, Pop. 2,762         34         300,000         100,000           Clay Cauty Hospital Flora, Pop. 5,474         50         855,803         283,267         Pratt County Hospital Pratt, Pop. 6,591         48         712,500         187,500           Hancock County Hospital Carthage, Pop. 2,575         50         605,000         200,000         Comanche County Hospital Kinsley, Pop. 1,217         20         183,150 </td <td>Petropolis, Pop. 6,287</td> <td>54</td> <td>742,500</td> <td>247,500</td> <td>Bloomfield, Pop. 2,732</td> <td>34</td> <td>473,000</td> <td>156,166</td>	Petropolis, Pop. 6,287	54	742,500	247,500	Bloomfield, Pop. 2,732	34	473,000	156,166
## Nt. Vernon, Pop. 14,724   100   1,164,000   388,000   KANSAS    Fairfield Memorial Hospital   100   1,003,000   333,333   St. Joseph Memorial Hospital   Larned, Pop. 3,533   43   588,663   170,000     Mercer County Hospital   50   787,682   262,560   St. Margaret's Mercy Hosp.   12   464,000   154,667     Anna City Hospital   50   680,100   221,166   Coffeyville Municipal Hosp.   12   464,000   154,667     Clay County Hospital   50   617,000   200,000   Norton County Hospital   48   712,500   187,500     Lawrence County Hospital   50   855,803   283,267   Pratt County Hospital   48   712,500   187,500     Clay County Hospital   50   855,803   283,267   Pratt County Hospital   48   712,500   187,500     Hancock County Hospital   50   605,000   200,000   Comanche County Hospital   18   226,480   75,000     Hancock Gunty Hospital   75   1,054,500   350,000   Greenfield, Pop. 4,821   Greenfield, Pop. 5,878   40   750,500   255,000   Hanilton County Hospital   Noblewille, Pop. 5,878   40   750,500   250,000   Hanilton County Hospital   Noblewille, Pop. 3,578   40   740,800   241,100   Gerrard County Hospital   Russelville, Pop. 3,988   50   465,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000   150,000		64	1,059,633	226,341		20	262,583	87,527
Pairfield, Pop. 4,008   100 1,003,000   333,333   Larned, Pop. 3,533   43   588,663   170,000		100	1,164,000	388,000	KANSAS			
Aledo, Pop. 2,553 50 787,882 262,560 Fredonia, Pop. 3,524 12 464,000 154,667  Anna City Hospital Anna, Pop. 4,692 50 680,100 221,166 Coffeyville Municipal Hosp.  Lawrence County Hospital Lawrenceville, Pop. 6,213 50 617,000 200,000 Norton County Hospital Lawrenceville, Pop. 6,213 50 855,803 283,267 Pratt County Hospital Pratt, Pop. 6,591 48 712,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500 187,500		100	1,003,000	333,333		43	588,663	170,000
Anna, Pop. 4,692   50   680,100   221,166   Coffeyville, Pop. 17,355   74   562,500   187,500     Lawrence County Hospital   Lawrenceville, Pop. 6,213   50   617,000   200,000   Norton County Hospital   34   300,000   100,000     Clay County Hospital   50   855,803   283,287   Pratt County Hospital   48   712,500   187,500     Clay County Hospital   50   605,000   200,000   Comanche County Hospital   18   226,480   75,000     County Hospital   50   605,000   200,000   Codeside, Pop. 1,214   18   226,480   75,000     INDIANA	Mercer County Hospital Aledo, Pop. 2,593	50	787,682	262,560		12	464,000	154,667
Lawrenceville, Pop. 6,213 50 617,000 200,000 Norton, Pop. 2,762 34 300,000 100,000 Clay County Hospital Flora, Pop. 5,474 50 855,803 283,267 Pratt County Hospital Pratt, Pop. 6,591 48 712,500 187,500 Comanche County Hospital Coldwater, Pop. 1,214 18 226,480 75,000 Pratt, Pop. 5,275 50 605,000 200,000 Commander County Hospital Coldwater, Pop. 1,214 18 226,480 75,000 Pratt, Pop. 5,012 183,150 60,250 Pratt, Pop. 5,041 75 1,054,500 350,000 Pratt, Pop. 1,214 18 226,480 Pratt, Pop. 5,041 75 1,054,500 350,000 Pratt, Pop. 1,214 18 226,480 Pratt, Pop. 1,214 18 22 226,500 Pratt, Pop. 1,214 18 226,480 Pratt, Pop. 1,214 18 226,480 Pratt, Pop. 1,214 18 226,48		50	680,100	221,166	Coffeyville Municipal Hosp. Coffeyville, Pop. 17,355	74	562,500	187,500
Clay County Hospital Flora, Pop. 5,474   50   855,803   283,267   Pratt, Pop. 6,591   48   712,500   187,500	7	50	617,000	200,000		34	300,000	100,000
Hancock County Hospital Carthage, Pop. 2,575   50   605,000   200,000   Comanche County Hospital Coldwater, Pop. 1,214   18   226,480   75,000	Clay County Hospital	50				48	712,500	187,500
Edwards County Hospital   Rinsley, Pop. 2,178   22   226,500   75,500		50				18	226,480	75,000
Memorial Hospital of Dubois   County   Jasper, Pop. 5,041   75   1,054,500   350,000   The Good Samaritan Hospital   Vincennes, Pop. 18,228   40   750,500   255,000   Lawrenceburg, Pop. 4,413   50   740,800   241,100   City Memorial Hospital   Union City, Pop. 3,535   24   289,500   291,000   95,000   Corydon, Pop. 1,865   18   291,000   95,000   Covening Memorial Hosp.   Side and solve a county Memorial Hospital   Covening Memorial Hospital   C	INDIANA					22	226,500	75,500
Jasper, Pop. 5,041   75   1,054,500   350,000   Decatur County Hospital   Oberlin, Pop. 1,878   20   204,000   60,000	Memorial Hospital of Dubois				Kiowa County Memorial Hosp.			
Greenfield, Pop. 4,821   50   779,000   255,000   Medicine Lodge Memorial Hosp.   Medicine Lodge, Pop. 1,870   21   265,000   65,000	Jasper, Pop. 5,041	75	1,054,500	350,000	Decatur County Hospital			
The Good Samaritan Hospital Vincennes, Pop. 18,228  40  750,500  250,000  Logan County Hospital Russellville, Pop. 3,983  50  465,000  150,000  Lawrenceburg, Pop. 4,413  50  740,800  241,100  Garrard County Hospital Lancaster, Pop. 1,999  30  267,500  87,500  Union City, Pop. 3,535  24  289,500  96,250  Allen County War Mem'l. Hosp. Scottsville, Pop. 1,797  26  225,000  75,000  Corydon, Pop. 1,865  18  291,000  95,000  Owensboro-Daviess County Hosp.	Greenfield, Pop. 4,821 Hamilton County Hospital	50	779,000	255,000	Medicine Lodge Memorial Hosp.			
Vincennes, Pop. 18,228         40         750,500         250,000         Logan County Hospital Russellville, Pop. 3,983         50         465,000         150,000           Lawrenceburg, Pop. 4,413         50         740,800         241,100         Garrard County Hospital Lancaster, Pop. 1,999         30         267,500         87,500           Union City, Pop. 3,535         24         289,500         96,250         Allen County War Mem'l. Hosp. Scottsville, Pop. 1,797         26         225,000         75,000           Harrison County Hospital Corydon, Pop. 1,865         18         291,000         95,000         Owensboro-Daviess County Hosp.		85	1,043,600	336,166		21	200,000	03,000
Lawrenceburg, Pop. 4,413       50       740,800       241,100       Garrard County Hospital Lancaster, Pop. 1,999       30       267,500       87,500         Union City, Pop. 3,535       24       289,500       96,250       Allen County War Mem'l. Hosp. Scottsville, Pop. 1,797       26       225,000       75,000         Harrison County Hospital Corydon, Pop. 1,865       18       291,000       95,000       Owensboro-Daviess County Hosp.	Vincennes, Pop. 18,228	40	750,500	250,000	Logan County Hospital Russellville, Pop. 3,983	50	465,000	150,000
Union City, Pop. 3,535 24 289,500 96,250 Allen County War Mem'l. Hosp. Scottsville, Pop. 1,797 26 225,000 75,000 Corydon, Pop. 1,865 18 291,000 95,000 Owensboro-Daviess County Hosp.	Lawrenceburg, Pop. 4,413	50	740,800	241,100	Garrard County Hospital			
Corydon, Pop. 1,865 18 291,000 95,000 Owensboro-Daviess County Hosp.	Union City, Pop. 3,535	24	289,500	96,250	Allen County War Mem'l. Hosp.	1		
	Harrison County Hospital Corydon, Pop. 1,865	18	291,000	95,000	Owensboro-Daviess County Hosp.			

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# AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

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PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE	PROJECT	NO. BEDS	COST	EST. FED. SHARE
Owen County Memorial Hospital Owenton, Pop. 1,190	21	\$ 164,400	\$ 53,133	Benzie Hospital Frankfort, Pop. 1,642	27	\$ 239,160	\$ 79,720
Clinton & Hickman County Hosp. Clinton, Pop. 1,540	22	230,000	75,000	MINNESOTA			
Bowling Green Hospital	47	600,000	200,000	Baudette Municipal Hosp. Baudette, Pop. 1,017	24	316,546	105,515
Bowling Green, Pop. 14,585 Caldwell County War Mem'l. Hosp.				Renville County Hosp. Olivia, Pop. 1,788	30	300,000	100,000
Princeton, Pop. 5,389  Hayswood Hospital	35	280,000	90,000	Greenbush Community Hospital Greenbush, Pop. 556	20	223,607	73,554
Maysville, Pop. 6,572	20	193,800	64,600	St. Michael's Hospital			
Russell County Hospital Jamestown, Pop. 476	17	170,000	55,000	Sauk Centre, Pop. 3,016 Village of Wells Hospital	50	705,438	231,812
Campbell County General Hosp. Newport, Pop. 30,631	150	1,489,269	489,289	Wells, Pop. 2,217 Worthington Municipal Hosp.	26	302,700	100,000
LOUISIANA				Worthington, Pop. 5,918	50	732,000	244,000
Memorial Hospital New Orleans, Pop. 494,537	75	1,160,625	386,875	Community Memorial Hospital Blue Earth, Pop. 3,702	32	369,900	122,966
Homer Memorial Hospital Homer, Pop. 3,497	25	186,450	60,484	MISSISSIPPI			
Baton Rouge General Hosp. Baton Rouge, Pop. 34,719	275	1,870,637	601,879	Coahoma County Hospital Clarksdale, Pop. 12,168	100	1,004,650	326,550
Lake Charles Hospital				Gloster Clinic Gloster, Pop. 1,232	4	48,340	14,280
Lake Charles, Pop. 21,207  Beauregard Memorial Baptist	100	1,373,000	422,667	S. E. Lackey Memorial Hosp. Forest, Pop. 2,735	50	439,000	133,000
Hosp. De Ridder, Pop. 3,750	50	492,500	157,500	Field Memorial Hosp. Centreville, Pop. 1,163	50	450,000	146,600
Our Lady of Lourdes Hosp. Lafayette, Pop. 19,210	50	533,365	150,342	Tishomingo County Hosp.			
Legion Memorial Hospital Newellton, Pop. 789	(Equip. only	y) 49,909	16,636	Iuka, Pop. 1,664  Panola County Hospital Batesville, Pop. 1,815	60	237,000 851,500	78,333
				Greenwood Leflore Hospital			
MARYLAND				Greenwood, Pop. 14,767 Newton County Hospital	175	1,312,500	406,833
Garrett County Memorial Hosp. Oakland, Pop. 1,587	34	515,000	171,666	Decatur, Pop. 773  Jones County Hospital	40	328,500	106,333
omand, Pop. 1,001		010,000	213,000	Laurel, Pop. 20,598	105	1,302,400	425,800
				Washington County Hospital Greenville, Pop. 20,892	125	1,209,540	392,513
MASSACHUSETTS Milton Hosp. & Convalescent				Stone County Hospital Wiggins, Pop. 1,141	25	175,280	55,426
Home Milton, Pop. 18,708	53	979,822	249,834	Covington County Hospital Collins, Pop. 1,100	25	229,700	75,200
Athol Memorial Hospital Athol, Pop. 11,180	48	748,060	249,353	South Sunflower County Hospital Indianola, Pop. 3,604	50	493,250	151,083
MICHIGAN				Holmes County Community Hospital Lexington, Pop. 2,930	16	175,000	58,333
Martha T. Berry Memorial Hosp. Mt. Clemens, Pop. 14,389	100	1,164,000	387,333	Marion County General Hospital Columbia, Pop. 6,064	80	858,770	280,423
United Memorial Hospital				North Sunflower County Hospital			
Greenville, Pop. 5,321 St. Joseph Hospital	60	610,200	203,400	Ruleville, Pop. 1,378 Felix Long Memorial Hospital	30	266,300	87,766
St. Joseph, Pop. 8,963 Holland City Hospital	104	1,800,000	597,400	Starkville, Pop. 4,900 Sharkey-Issaquena Hospital	40	339,300	101,033
nonand, Pop. 14,616	24	288,527	82,439	Rolling Fork, Pop. 1,320	25	218,700	70,000
Dickinson County Mem'l Hosp. Iron Mountain, Pop. 11,080	72	900,000	300,000	Leake County Memorial Hospital Carthage, Pop. 1,766	50	524,600	172,866
St. Joseph's Hospital Hancock, Pop. 5,554	150	2,025,000	675,000	Tippah County Hospital Ripley, Pop. 2,011	40	316,000	103,933
Schoolcraft Memorial Hospital Manistique, Pop. 5,399	32	421,200	140,400	Greene County Hospital Leakesville, Pop. 834	25	239,900	77,300
Rogers City General Hosp. Rogers City, Pop. 3,072	27	356,520	118,840	Choctaw County Hospital Ackerman, Pop. 1,528	23	141,200	45,066

# THE BULLETIN

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PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE	PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE
Kemper County Hospital DeKalb, Pop. 866	30	\$ 240,000	\$ 78,666	NEW MEXICO			
Copiah County Hospital				Lea County Community Hospital			
Hazlehurst, Pop. 3,124  Durant Community Hospital	50	460,000	148,333	Hobbs, Pop. 10,619  Dona Ana City County Hospital	75	\$ 912,569	\$ 18,754
Lexington, Pop. 2,930	25	238,460	77,020	Las Cruses, Pop. 8,385	75	750,000	250,000
Wayne County Hospital Waynesboro, Pop. 1,445	25	229,100	75,200	Gerald Champion Mem'l Hospital Alamogordo, Pop. 3,950	26	228,640	75,546
Jefferson Davies County Hospital Prentiss, Pop. 989	30	237,700	76,900	Lincoln County Municipal Hosp. Carrizozo, Pop. 1,457	25	178,250	58,250
Tunica County Hospital Tunica, Pop. 1,322	25	222,100	71,600	Hondo Valley General Hospital Ruidoso, Pop. 516	15	108,000	36,000
Okolona Hospital Okolona, Pop. 2,117	25	185,267	59,711	NORTH CAROLINA			
The Northeast Mississippi Hosp. Booneville, Pop. 1,893	50	611,800	198,600	Stanly County Hospital Albermarle, Pop. 4,060	100	1,200,000	400,000
George County Hospital Lucedale, Pop. 1,204	30	259,916	80,991	Roaħoke-Chowan Hospital (4a) Ahoskie, Pop. 2,313	42	139,653	46,551
Franklin County Hospital Meadville, Pop. 510	30	250,200	83,400	Pungo District Hospital Belhaven, Pop. 2,360	20	124,962	41,154
MISSOURI				Caldwell Memorial Hospital Lenoir, Pop. 7,598	100	1,200,000	400,000
St. John's Hospital Springfield, Pop. 61,238	210	5,183,000	1,719,666	Halifax County Community Clinic Scotland Neck, Pop. 2,559	20	166,233	53,333
Pemiscot County Mem'l. Hosp. Hayti, Pop. 2,628	56	523,062	173,062	Montgomery Memorial Hospital Troy, Pop. 1,861	40	480,000	160,000
Perry County Memorial Hospital Perryville, Pop. 3,907	50	440,900	176,133	Scotland County Memorial Hosp. Laurinburg, Pop. 5,685	100	1,200,000	400,000
Lincoln County Memorial Hosp. Troy, Pop. 1,493	50	572,500	187,500	Sampson County Hospital Clinton, Pop. 3,557	100	1,200,000	400,000
Dunklin County Hospital Kennett, Pop. 6,335	65	735,738	244,246	Franklin County Hospital Louisburg, Pop. 2,509	50	600,000	200,000
Phelps County Public Mem'l. Hosp. Rolla, Pop. 5,141	58	655,625	215,451	Chatham County Hospital Siler City, Pop. 2,197	50	637,600	200,000
MONTANA				Person County Memorial Hospital Roxboro, Pop. 4,599	60	724,250	240,000
Fallon County Hospital Baker, Pop. 1,304	18	172,485	57,266	NORTH DAKOTA			
Glacier County Memorial Hosp. Cut Bank, Pop. 2,509	36	264,000	86,000	McKenzie County Community Hosp. Watford City, Pop. 1,073	18	139,400	46,466
Teton Memorial Hospital Choteau, Pop. 1,181	22	212,000	70,000	Griggs County Hospital Cooperstown, Pop. 1,077	9	229,800	76,600
NEBRASKA				Community Memorial Hospital	20		
Memorial Hospital	0.0	212 222	E0.000	Hettinger, Pop. 1,138	28	287,730	95,910
Seward, Pop. 2,826 Wakefield Community Hospital	26	218,000	70,000	OHIO			
Wakefield, Pop. 961	18	159,100	52,433	Mercy Memorial Hospital Urbana, Pop. 8,335	50	822,000	273,333
Rushville Municipal Hospital Rushville, Pop. 1,125	18	151,200	50,400	Ashtabula General Hospital Ashtabula, Pop. 21,405	100	1,274,000	424,666
Boone County Community Hospital Albion, Pop. 2,268	20	165,000	55,000	Mount St. Mary Hospital Nelsonville, Pop. 5,368	74	1,176,000	392,000
Saunders County Hospital Wahoo, Pop. 2,648	25	262,500	82,500	Clinton Memorial Hospital Wilmington, Pop. 5,971	65	879,200	293,066
Miller Memorial Hospital Chappell, Pop. 1,093	14	154,565	51,021	The Defiance Hospital Defiance, Pop. 9,744	66	825,000	275,000
Kimball County Hospital Kimball, Pop. 1,725	24	208,280	69,026	Greene County Memorial Hospital Xenia, Pop. 10,633	75	1,214,000	404,666
Oakland Memorial Hospital Oakland, Pop. 1,380	20	200,000	66,666	Union County Hospital Marysville, Pop. 4,037	25	540,000	180,000
Crete Municipal Hospital Crete, Pop. 3,038	25	204,500	66,666	Wood County Hospital Bowling Green, Pop. 7,190	54	750,000	250,000
West Point Memorial Hospital West Point, Pop. 2,510	75	1,072,000	223,175	Wooster Community Hospital Wooster, Pop. 11,543	70	1,369,986	164,195

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PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE	PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE
Guernsey Memorial Hospital		S 1 050 000	\$ 250,000	SOUTH CAROLINA			
Cambridge, Pop. 15,044  Wyandot Memorial Hospital	66	\$ 1,050,000	\$ 350,000	Loris Community Hospital Loris, Pop. 1,238	25	\$ 157,500	\$ 50,500
Upper Sandusky, Pop. 3,907	25	361,100	120,366	Hampton County Hospital Hampton, Pop. 997	25	267,000	83,333
OKLAHOMA				Georgetown County Mem'l. Hospital	50	EE9 010	181,819
Guymon, Cith Hospital Guymon, Pop. 2,290	25	273,552	90,784	Georgetown, Pop. 5,559  Clarendon County Hospital		553,818	
Hugo Memorial Hospital Hugo, Pop. 5,909	32	301,160	99,386	Manning, Pop. 2,381	50	500,000	165,333
Fairfax Municipal Hospital Fairfax, Pop. 2,327	22	165,300	53,433	SOUTH DAKOTA			
Nowata Hospital Inc.	30			Freeman Community Hospital Freeman, Pop. 976	19	111,200	34,733
Nowata, Pop. 3,904 Okeene Municipal Hospital	30	144,918	46,639	City of Chamberlain Hospital Chamberlain, Pop. 1,626	30	329,200	109,732
Okeene, Pop. 1,079	24	201,000	62,000	Rosebud Community Hospital Winner, Pop. 2,426	28	293,498	90,300
Community Hospital Kingfisher, Pop. 3,352	20	160,000	50,000	Spink County Hospital			
St. Joseph's Hospital Seminole, Pop. 11,547	30	216,000	62,000	Redfield, Pop. 2,428  Five Counties Hospital	36	300,000	100,000
Le Flore County Memorial Hosp. Poteau, Pop. 4,020	40	375,000	125,000	Lemmon, Pop. 1,781	32	210,570	70,000
Sequoyah County Hospital	24	96,607	32,202	TENNESSEE			
Sallisaw, Pop. 2,140 Watonga Municipal Hospital	24	90,007	32,202	Obion County Hospital Union City, Pop. 7,256	60	625,000	200,000
Watonga, Pop. 2,828	20	212,000	64,000	Lauderdale County Hospital Ripley, Pop. 2,784	55	465,000	150,000
Edwards Memorial Hospital, Inc. Oklahoma City, Pop. 204,424	72	125,550	41,850	Lawrence County Hospital			
Jackson County Hospital Altus, Pop. 8,593	55	457,500	150,000	Lawrenceburg, Pop. 3,807 Cookeville Hospital	50	459,250	150,000
Comanche County Memorial Hosp Lawton, Pop. 18,055	100	968,450	143,500	Cookeville, Pop. 4,364  Giles County Hospital & P.H.C.	40	366,780	102,926
University of Oklahoma School			174,950	Pulaski, Pop. 5,314	40	375,000	121,667
of Medicine and Univ. Hosp. Oklahoma City, Pop. 204,424	(Equip. only	105,261	35,087	Uplands Cumberland Hospital Crossville, Pop. 1,511	40	484,269	156,756
OREGON				Carroll County Hospital Huntingdon, Pop. 1,432	25	300,000	100,000
Wallowa Memorial Hospital Enterprise, Pop. 838	30	274,500	91,500	Madison County Hospital Jackson, Pop. 24,332	100	1,530,000	500,000
Harney County Hospital Burns, Pop. 2,566	31	270,862	89,620				
Pioneer Memorial Hospital Heppner, Pop. 1,140	15	189,294	63,098	TEXAS			
Tillamook County Hospital Tillamook, Pop. 2,751	75	995,125	327,800	Martin County Memorial Hospital Stanton, Pop. 1,245	20	215,100	65,100
PENNSYLVANIA		,	021,000	Navarro County Memorial Hospital Corsicana, Pop. 15,232			
Bradford Hospital Bradford, Pop. 17,691	146	1,752,500	483,333	Coke County Memorial Hospital Robert Lee, Pop. ?	100	1,225,000	400,000
Bedford County Hospital				Throckmorton Memorial Hospital	10	117,510	39,170
Bedford, Pop. 3,268 Wayne County Memorial Hospital	66	1,151,000	362,000	Throckmorton, Pop. 1,133	12	144,500	47,500
Honesdale, Pop. 5,687 Fulton Medical Center	61	861,040	287,013	Reagan County Memorial Hospital Big Lake, Pop. 763	10	142,150	46,300
McConnellsburg, Pop.	16	156,000	52,000	Memorial Hospital Kilgore, Pop. 6,708	50	842,500	275,500
Gnaden Huetten Mem'l. Hospital Lehighton, Pop. 6,615	50	643,787	214,262	Donna General Hospital Donna, Pop. 4,712	10	125,000	41,666
Meyersdale Community Hospital Meyersdale, Pop. 3,250	50	393,016	129,505	Holy Cross Hospital Austin, Pop. 87,930	40	533,400	164,466
Chambersburg Hospital Chambersburg, Pop. 14,852	132	2,006,532	668,844	Providence Memorial Hospital El Paso, Pop. 96,810	140	1,500,000	500,000
Corry Memorial Hospital Corry, Pop. 6,935	60	1,045,796	348,257	Newton County Hospital Newton, Pop. 1,400	30	203,720	66,073

PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE	PROJECT	NO. BEDS	EST. TOT.	EST. FED. SHARE
San Augustine City Mem'l Hospital San Augustine, Pop. 1,516	32	\$ 146,618	\$ 48,872	UTAH			
Moore County Hospital Dumas, Pop. 2,117	28	234,920	78,306	Utah Valley Hospital Provo, Pop. 18,071	54	\$ 475,000	\$ 158,333
Huntsville Memorial Hospital Huntsville, Pop. 5,108	32	370,000	115,000	Uintah County Hospital Vernal, Pop. 2,119	35	421,408	134,802
Mason Memorial Hospital Mason, Pop. 1,535	10	100,500	33,500	VERMONT			
Lillian M. Hudspeth Mem'l. Hospital Sonora, Pop. 2,528	12	150,000	50,000	Kerbs Memorial Hospital St. Albans, Pop. 8,037	66	1,050,000	115,666
Midland Memorial Hospital Midland, Pop. 9,352	75	1,125,000	375,000	VIRGINIA			
Uvalde County Hospital Uvalde, Pop. 6,679	40	395,400	131,800	Rockingham Memorial Hospital Harrisonburg, Pop. 8,768	118	1,440,967	245,322
Gray County Hospital Pampa, Pop. 12,895	90	1,066,000	353,333	Louise Obici Memorial Hospital Suffolk, Pop. 11,343	100	1,610,500	533,500
Lee Memorial Hospital Giddings, Pop. 2,166	16	143,700	47,900	Giles Memorial Hospital Pearisburg, Pop. 987	46	650,000	216,666
San Saba County Hospital San Saba, Pop. 2,927	22	232,500	75,666	Shenandoah County Mem'l. Hosp. Woodstock, Pop. 1,546	45	605,000	200,000
Goliad County Hospital Goliad, Pop. 1,446	14	170,500	55,500	Winchester Memorial Hospital Winchester, Pop. 12,095	111	1,350,000	450,000
Calhoun County Hospital Port Lavaca, Pop. 2,069	20	227,000	75,000	Warren Memorial Hospital Front Royal, Pop. 3,831	43	600,000	200,000
Hemphill County Hospital Canadian, Pop. 2,151	16	124,000	40,000	King's Daughters' Hospital Staunton, Pop. 13,337	42	2,000,420	650,140
Panola County Hospital Carthage, Pop. 2,178	50	504,000	166,666	WASHINGTON			
Edwards County Hospital Rocksprings, Pop. 1,339	10	112,500	37,500	Lincoln County Hospital Odessa, Pop. 816	9	104,250	34,683
Tyler County Hospital Woodville, Pop. 1,521	23	225,000	75,000	Olympic Clinic Forks, Pop. 600	13	168,475	55,891
· Mauritz Memorial Hospital Ganado, Pop. 717	28	316,500	105,500	WEST VIRGINIA			
			**	Charleston Memorial Hospital Charleston, Pop. 67,914	116	3,000,000	1,000,000
Hardin County Hospital Kountze, Pop. 1,000	50	455,000	150,000	WISCONSIN			
Trinity Memorial Hospital Trinity, Pop. 2,217	14	119,640	39,880	Platteville Municipal Hospital Platteville, Pop. 4,762	30	397,513	130,337
Sarah Cartmell Mem'l. Hospital Palestine, Pop. 12,144	60	594,900	193,300	Fort Atkinson Memorial Hospital Fort Atkinson, Pop. 6,153	62	813,630	266,143
Dimmit County Hospital Carrizo Springs, Pop. 2,494	30	301,400	100,000	Vernon Memorial Hospital Viroqua, Pop. 3,549	50	650,475	216,666
Shackelford County Mem'l. Hospital Albany, Pop. 2,239	16	110,525	36,500	New Richmond Holy Family Hosp. New Richmond, Pop. 2,388	25	381,500	125,000
				Osceola Hospital Osceola, Pop. 642	10	105,000	35,000
Karnes County Hospital Karnes City, Pop. 1,571	13	121,600	40,533	WYOMING		,	
Tomball Hospital Tomball, Pop. 668	10	125,000	41,000	Goshen County Memorial Hospital	46	390,000	130,000
S. B. Allen Memorial Hospital Bonham, Pop. 6,349	55	765,000	255,000	Fremont County Memorial Hospital			14,975
Dolly Vinsant Memorial Hospital San Benito, Pop. 9,501	40	389,200	125,733	Riverton, Pop. 2,540	15	210,000	14,000
Flow Memorial Hospital Denton, Pop. 11,192	60	712,500	225,000				
Yorktown Memorial Hospital Yorktown, Pop. 2,081	20	230,700	76,900	ALASKA			
Sabine County Hospital Hemphill, Pop. 739	22	225,000	75,000	Maynard-MacDougall Hospital Nome, Pop. 1,559	34	440,400	41,400
Hopkins County Hospital Sulphur Springs, Pop. 6,742	31	187,000	59,000				